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(19) INDIA

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(54) Title of the invention : **Internet of things & artificial intelligent based Automatic Herbicide Spraying System**

(51) International classification :G05D0001020000, A01M0021040000, A01M0007000000, B25J0011000000, G05D0001000000  
(86) International Application No Filing Date :PCT// :01/01/1900  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number Filing Date :NA :NA  
(62) Divisional to Application Number Filing Date :NA :NA

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(57) Abstract :

Internet of things & artificial intelligent based Automatic Herbicide Spraying System Abstract: Researchers have identified a way to address the health concerns linked with the standard technique of herbicide application, which is the focus of this article. They must be used properly to keep plants healthy during their growth and to eradicate undesirable plants, such as weeds. It is vital to carefully apply herbicides and other chemicals to avoid causing harm to plant growth. Artificial intelligence and the Internet of Things can assist us in creating and building an Autonomous Herbicide Spraying System that sprays herbicide autonomously (IoT). The objective of this research is to show how a moving average filter may be used to filter GPS data in order to enhance a robotic vehicle's self-driving system. Another advantage of this robot is that it can count weeds while simultaneously spraying insecticide. Additionally, the robot is equipped with a sensor that detects herbicide and transmits real-time data to the Internet of Things.

No. of Pages : 11 No. of Claims : 7

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G.A.R.6  
[See Rule 22(1)]  
RECEIPT



Docket No 100959

Date/Time 2021/11/01 22:13:37

**CBR Detail:**

Sr. No.	Ref. No./Application No.	App. Number	Amount Paid	C.B.R. No.	Form Name	Remarks
1					1	
2	202141050175	TEMP/E-1/56866/2021-CHE	1600	40867	FORM 1	CONGESTION AVOIDANCE AND CONTROL IN 5G WIRELESS SENSOR NETWORK FOR CHAIN TOPOLOGY
3						
4	E-12/4498/2021/CHE	202141050175	2500	40867	FORM 9	

TransactionID	Payment Mode	Challan Identification Number	Amount Paid	Head of A/C No
	Online Bank Transfer		8200.00	

Total Amount : ₹ 8200

Amount in Words: Rupees Eight Thousand Two Hundred Only

₹ 8200 on account of Payment of fee for above mentioned Application/Forms.

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**FORM 2**  
**THE PATENT ACT 1970**  
**(39 OF 1970)**  
**AND**  
**The patent rules, 2003**  
**COMPLETE SPECIFICATION**  
**(See section 10: rule 13)**

**TITLE OF INVENTION**

**CONGESTION AVOIDANCE AND CONTROL IN 5G WIRELESS SENSOR  
NETWORK FOR CHAIN TOPOLOGY**

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Mr. MDR. Shivkhumar	Indian	Managing Director, ComfortElevatronics India Ltd Bangalore
Mrs.V.Revathy	Indian	Assistant Professor, Department of Computer Science and Engineering, Arasu Engineering College, Kumbakonam-612501

**PREAMBLE TO THE DESCRIPTION**

**COMPLETE**

Following specification particularly describes the invention and the manner in which it is to be performed.

### **Technical field of invention:**

Present invention relates to wireless sensor network and more particularly to method of construction and working of Congestion avoidance and control near sink in Wireless Sensor Network for chain topology.

### **Background of the present invention**

In wireless sensor network there can be more than one hop between sensor nodes and sink. In this type of multi-hop network packets which are generated by sensor nodes can be relayed with the help of its neighboring nodes. In sensor networks traffic can be periodic or non-periodic in nature. When there are concurrent data transmissions then in case of single-hop network with periodic type of traffic congestion can occur in wireless sensor network because of radio channels vary with time and also channel quality depend on traffic density. In case of non-periodic type of traffic bursts of messages can be generated when a particular event is occurred in the network. Hence it causes buffer overflow at the nodes and congestion in the network. In multi-hop network traffic has to travel through many radio channels. Because of time varying radio channel and traffic load in case of multi-hop network there are severe chances of packet drops and also waste of energy because of retransmissions of packets.

### **Objective of the invention:**

Primary object of the present invention is to transmit the data which is generated by the sensor nodes to the sink through intermediate nodes. When a particular event is occurred then large amount of data can be transmitted to sink. It can lead to buffer overflow at the intermediate nodes and in turn congestion in the sensor network.

### **Summary of the invention**

### **Detailed description of invention**

Exemplary embodiments now will be described with reference to the accompanying drawings. The invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this invention will be thorough and complete, and will fully convey its scope to those skilled in the art.

Present invention is the Process Congestion avoidance and control in Wireless Sensor Network for chain topology mainly comprising of following steps:

A. Identification of the parameters responsible for congestion

Identify the parameters which are responsible for the traffic congestion in the network. These parameters may have adverse effect on the wireless sensor network performance.

**B. Root cause analysis of the congestion parameters**

After finding the parameters the root cause analysis for the congestion in the network must be carried out on it.

**C. Designing step wise process to counteract the above mentioned parameter**

Effective congestion control mechanism will be proposed to overcome the problems found in the root cause analysis. The proposed solution will be used to control the congestion and also will give better performance.

**D. Implement / simulate the above proposed design**

The proposed methodology for the controlling and reducing the congestion problem must be properly tested by the simulation.

**E. To have a performance measurement of the strategies proposed above**

The simulated results will be checked against the required results. The performance measurement will be carried out on the simulated results.



**I/We claim,**

1. A process for congestion avoidance and control in wireless sensor network for chain topology, comprising of following steps;
  - a. at sensor nodes parameters responsible for the traffic congestion identified through checking the buffer occupancy wherein further a root cause analysis is implemented;
  - b. once the congestion is detected in the sensor network, then congestion notification bit explicitly set in the outgoing packet;
  - c. and after receiving the congestion notification packet, a previous node adjusts the reporting rate according to an adaptive configuration which is executing on MSP 430 processor.

## **ABSTRACT**

The present invention relates to a congestion avoidance and control in 5g wireless sensor network for chain topology. In Wireless Sensor Networks (WSNs) there are one or more sinks or base stations and many sensor nodes distributed over wide area. Sensor nodes have restricted power. Sensor nodes gather specific data and transmit gathered data to sink when a particular event is occurred. These sensor nodes can transmit large volume of data towards the sink. It can result in buffer overflow at the nodes. Hence there is congestion in the sensor network around the sink. Congestion in the network may cause packet drops and energy waste. Hence it shortens the lifetime of sensor nodes. So congestion in sensor network needs to be controlled to decrease the waste of energy and also to increase the lifetime of sensor nodes.

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**FORM 1**  
**THE PATENTS ACT, 1970**  
**(39 of 1970)**  
**&**  
**THE PATENTS RULES, 2003**  
**APPLICATION FOR GRANT OF PATENT**  
**[See sections 7,54 & 135 and rule 20(1)]**

**Application**  
**No.:** .....  
**Filing Date:** .....  
**Amount of Fee**  
**Paid:** .....  
**CBR No.:** .....  
**Signature:** .....

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4	Mr. P. Nelson Kingsley Joel	India	Assistant Professor, Department of Electronics and Communication Engineering, JP College of Engineering, Tenkasi – 627852, Tamil Nadu, India	India	Tamil Nadu
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10	Mrs. V. Revathy	India	Assistant Professor, Department of Computer Science and Engineering, Arasu Engineering College, Kumbakonam-612501	India	Tamil Nadu

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10	Mrs. V. Revathy	India	Assistant Professor, Department of Computer Science and Engineering, Arasu Engineering	India	Tamil Nadu

College, Kumbakonam- 612501
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**3. TITLE OF THE INVENTION: CONGESTION AVOIDANCE AND CONTROL IN 5G WIRELESS SENSOR NETWORK FOR CHAIN TOPOLOGY**

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**5. PRIORITY PARTICULARS OF THE APPLICATION(S) FILED IN CONVENTION COUNTRY:**

Sr.No.	Country	Application Number	Filing Date	Name of the Applicant	Title of the Invention
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**6. PARTICULARS FOR FILING PATENT COOPERATION TREATY (PCT) NATIONAL PHASE APPLICATION:**

International Application Number	International Filing Date as Allotted by the Receiving Office
PCT//	

**7. PARTICULARS FOR FILING DIVISIONAL APPLICATION**

Original (first) Application Number	Date of Filing of Original (first) Application
-------------------------------------	------------------------------------------------

**8. PARTICULARS FOR FILING PATENT OF ADDITION:**

Main Application / Patent Number:	Date of Filing of Main Application
-----------------------------------	------------------------------------

**9. DECLARATIONS:**

**(i) Declaration by the inventor(s)**

I/We ,Dr. M. Senthil Kumar,Dr. M. Monisha,Dr. R Palson Kennedy,Mr. P. Nelson Kingsley Joel,Mr. Mahaboob Subani Shaik,Dr. A Selva Reegan,Dr. Alagu Thillaivanan,Dr. K. Arulanandam,Mr. MDR. Shivkhumar,Mrs. V. Revathy, is/are the true & first inventor(s) for this invention and declare that the applicant(s) herein is/are my/our assignee or legal representative.

(a) Date: -----

(b) Signature(s) of the inventor(s): .....

(c) Name(s): Dr. M. Senthil Kumar,Dr. M. Monisha,Dr. R Palson Kennedy,Mr. P. Nelson Kingsley Joel,Mr. Mahaboob Subani Shaik,Dr. A Selva Reegan,Dr. Alagu Thillaivanan,Dr. K. Arulanandam,Mr. MDR. Shivkhumar,Mrs. V. Revathy

**(ii) Declaration by the applicant(s) in the convention country**

I/We, the applicant(s) in the convention country declare that the applicant(s) herein is/are my/our assignee or legal representative.

(a) Date: -----

(b) Signature(s) : .....

(c) Name(s) of the singnatory: Dr. M. Senthil Kumar,Dr. M. Monisha,Dr. R Palson Kennedy,Mr. P. Nelson Kingsley Joel,Mr. Mahaboob Subani Shaik,Dr. A Selva Reegan,Dr. Alagu Thillaivanan,Dr. K. Arulanandam,Mr. MDR. Shivkhumar,Mrs. V. Revathy

**(iii) Declaration by the applicant(s)**

- **The Complete specification relationg to the invention is filed with this application.**
- **I am/We are, in the possession of the above mentioned invention.**
- **There is no lawful ground of objection to the grant of the Patent to me/us.**

10. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION:

Sr.	Document Description	FileName
1	STATEMENT OF UNDERTAKING (FORM 3)	form 3.pdf
2	DECLARATION OF INVENTORSHIP (FORM 5)	form 5.pdf
3	COMPLETE SPECIFICATION	form 2.pdf

I/We hereby declare that to the best of my/our knowledge, information and belief the fact and matters stated hering are correct and I/We request that a patent may be granted to me/us for the said invention.

Dated this(Final Payment Date): -----

Signature: .....

# FORM 9

THE PATENT ACT, 1970  
(39 of 1970)  
&  
THE PATENTS RULES, 2003

## REQUEST FOR PUBLICATION

[See section 11A (2) rule 24A]

I/We **Dr. M. Senthil Kumar, Dr. M. Monisha, Dr. R Palson Kennedy, Mr. P. Nelson Kingsley Joel, Mr. Mahaboob Subani Shaik, Dr. A Selva Reegan, Dr. Alagu Thillaivanan, Dr. K. Arulanandam, Mr. MDR. Shivkhumar, Mrs. V. Revathy** hereby request for early publication of my/our [Patent Application No.]  
TEMP/E-1/56866/2021-CHE

Dated **01/11/2021 00:00:00** under section 11A(2) of the Act.

Dated this(Final Payment Date):-----

Signature

Name of the signatory

To,  
The Controller of Patents,  
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# Notice of filing for your innovation patent application

## Patentable

PO Box Q830  
Queen Victoria Building NSW 1230  
Australia

**Application number** 2021105809  
**Applicant name** RAJANI B, BALASUBRAMANIAM D,  
SUNITHA D, **RAMKUMAR PRABHU M**,  
GNANASUNDARA JAYARAJA B,  
MANJUNATH T.C, POONGODI S,  
MADHURIKKHA S, KARTHIKEYAN S, DILIP  
SINGH J  
**Your reference** GOW0016I01AU

## Your progress

- Filed**  
Application is filed
- Acceptance and Grant**  
Application is accepted and patent granted
- Examination**  
Patent is being examined
- Certification**  
Patent is certified  
(patent is now enforceable)
- Renewal**  
Renewal fees required to maintain patent  
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Dear Applicant,

Thank you for filing an innovation patent application with IP Australia.

**Your innovation patent application number is:**  
2021105809

**Your filing date is:** 18 August 2021

### What you need to do now

- **Check your details** – attached to this letter are the details of your application. Please review your details to ensure they are correct.

### What will happen next

- **If your application is in order** – your innovation patent will be accepted and granted within four weeks of your filing date. If there are any outstanding matters, we will contact you.
- **If the filing fee has not been paid** - an Invitation To Pay will be issued to you.

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**Application number** 2021105809  
**Your reference** GOW0016I01AU

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- Please quote your application number when contacting IP Australia or making payments.

Details of your patent application can be viewed on [AusPat](#), our Australian patent search database.

Yours sincerely,

IP Australia

# Your application summary

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## Innovation patent application details

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**Application number:** 2021105809  
**Title:** SMART SPECTACLES WITH DISPLAY AND REMINDER TECHNIQUES  
**Your reference:** GOW0016I01AU

## Documents filed

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A complete specification comprising:

- Description
- Claim(s)
- Drawing(s)

An abstract has also been filed.

## Applicant and inventor details

---

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T. C., MANJUNATH

S., POONGODI  
S., MADHURIKKHA  
S., KARTHIKEYAN  
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#### Priority details

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**Priority details:** None

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#### Relevant dates

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**Filing date:** 18 August 2021  
**Date of patent:** 18 August 2021  
**Expiry date:** 18 August 2029

पेटेंट कार्यालय  
शासकीय जर्नल

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निर्गमन सं. 29/2021  
ISSUE NO. 29/2021

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FRIDAY

दिनांक: 16/07/2021  
DATE: 16/07/2021

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पेटेंट कार्यालय का एक प्रकाशन  
PUBLICATION OF THE PATENT OFFICE

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202141031518 A

(19) INDIA

(22) Date of filing of Application :13/07/2021

(43) Publication Date : 16/07/2021

(54) Title of the invention : **IOT BASED CROP MONITORING SCHEME USING SMART DEVICE WITH MACHINE LEARNING METHODOLOGY**

(51) International classification	:G06Q0050020000, H04L0029080000, G06Q0010040000, A01G0025160000, H04N0007180000	(71)Name of Applicant : <b>1)Dr. SHYLAJA S L</b> Address of Applicant :PRINCIPAL, EAST WEST POLYTECHNIC, NO. 63, OFF MAGADI ROAD, VISHWANEEDAM POST, BEL LAYOUT, ANJANA NAGAR, BEL LAYOUT, PHASE 2, BEDARAHALLI, BENGALURU, KARNATAKA 560091 Karnataka India <b>2)Dr. SHAIK FAIROOZ</b> <b>3)Dr. J. VENKATESH</b> <b>4)Dr. D. SUNITHA</b> <b>5)Dr. R. PRAKASH RAO</b> <b>6)Dr.M.RAMKUMAR PRABHU</b>
(31) Priority Document No	:NA	(72)Name of Inventor : <b>1)Dr. SHYLAJA S L</b> <b>2)Dr. SHAIK FAIROOZ</b> <b>3)Dr. J. VENKATESH</b> <b>4)Dr. D. SUNITHA</b> <b>5)Dr. R. PRAKASH RAO</b> <b>6)Dr.M.RAMKUMAR PRABHU</b>
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No	:PCT//	
Filing Date	:01/01/1900	
(87) International Publication No	: NA	
(61) Patent of Addition to Application	:NA	
Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :

IoT-based crop monitoring scheme using a smart device with machine learning methodology. The proposed invention is the Internet of Things (IoT) is the most considerable medium for all smart applications, in which it provides huge support to the agricultural industry in a fine manner. The proposed invention is intended to design the new machine learning-enabled Smart Internet of Things medium to support the agricultural field in a proper way. In the proposed invention an Intelligent Crop Monitoring Device (ICMD) is introduced to monitor the crops over the agricultural field in a 24x7 manner. This kind of monitoring device enhances the production and quality-of-service of agriculture as well as related products. The data acquired from the agriculture fields are temperature, humidity, and soil moisture level, in which these records are passed to the server unit by using an IoT module associated with the ICMD. The data available on the server can easily be monitored by the farmer from anywhere at any time. The learning model predicts the status of the crop in the field by means of analyzing the input acquired from the real-time testing input and report that to the respective farmer for taking appropriate action. For all this system is useful to the agricultural field and provides good support to farmers to monitor the crops over the agricultural field from the remote place even. By using this proposed scheme, the farmers can make accurate and efficient crop management decisions with the use of results obtained by using the Smart Device called ICMD.

No. of Pages : 21 No. of Claims : 6

**FORM 1****THE PATENTS ACT, 1970****(39 of 1970)****&****THE PATENTS RULES, 2003****APPLICATION FOR GRANT OF PATENT****[See sections 7,54 & 135 and rule 20(1)]****(FOR OFFICE USE ONLY)****Application No.:** .....**Filing Date:** .....**Amount of Fee Paid:** .....**CBR No.:** .....**Signature:** .....**1. APPLICANT(S):**

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**3. TITLE OF THE INVENTION: IOT BASED CROP MONITORING SCHEME USING SMART DEVICE WITH MACHINE LEARNING METHODOLOGY**

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**5. PRIORITY PARTICULARS OF THE APPLICATION(S) FILED IN CONVENTION COUNTRY:**

Sr.No.	Country	Application Number	Filing Date	Name of the Applicant	Title of the Invention
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**6. PARTICULARS FOR FILING PATENT COOPERATION TREATY (PCT) NATIONAL PHASE APPLICATION:**

International Application Number	International Filing Date as Allotted by the Receiving Office
PCT//	

**7. PARTICULARS FOR FILING DIVISIONAL APPLICATION**

Original (first) Application Number	Date of Filing of Original (first) Application
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**8. PARTICULARS FOR FILING PATENT OF ADDITION:**

Main Application / Patent Number:	Date of Filing of Main Application
-----------------------------------	------------------------------------

**9. DECLARATIONS:**

**(i) Declaration by the inventor(s)**

I/We ,Dr. SHYLAJA S L,Dr. SHAIK FAIROOZ,Dr. J. VENKATESH,Dr. D. SUNITHA,Dr. R. PRAKASH RAO,Dr.M.RAMKUMAR PRABHU, is/are the true & first inventor(s) for this invention and declare that the applicant(s) herein is/are my/our assignee or legal representative.

(a) Date: -----

(b) Signature(s) of the inventor(s): .....

(c) Name(s): Dr. SHYLAJA S L,Dr. SHAIK FAIROOZ,Dr. J. VENKATESH,Dr. D. SUNITHA,Dr. R. PRAKASH RAO,Dr.M.RAMKUMAR PRABHU

**(ii) Declaration by the applicant(s) in the convention country**

I/We, the applicant(s) in the convention country declare that the applicant(s) herein is/are my/our assignee or legal representative.

(a) Date: -----

(b) Signature(s) : .....

(c) Name(s) of the singnatory: Dr. SHYLAJA S L,Dr. SHAIK FAIROOZ,Dr. J. VENKATESH,Dr. D. SUNITHA,Dr. R. PRAKASH RAO,Dr.M.RAMKUMAR PRABHU

**(iii) Declaration by the applicant(s)**

- **The Complete specification relationg to the invention is filed with this application.**
- **I am/We are, in the possession of the above mentioned invention.**
- **There is no lawful ground of objection to the grant of the Patent to me/us.**

10. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION:

Sr.	Document Description	FileName
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I/We hereby declare that to the best of my/our knowledge, information and belief the fact and matters stated hering are correct and I/We request that a patent may be granted to me/us for the said invention.

Dated this(Final Payment Date): -----

Signature: .....

Name: Gowthami S

To The Controller of Patents

The Patent office at CHENNAI

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**FORM 2**  
**THE PATENTS ACT, 1970**  
**(39 OF 1970)**  
**AND**  
**THE PATENT RULES, 2003**  
**COMPLETE SPECIFICATION**  
**(See section 10 and rule 13)**

**Title of Invention:**

**“IOT BASED CROP MONITORING SCHEME USING SMART DEVICE  
WITH MACHINE LEARNING METHODOLOGY”**

NAME OF APPLICANT	NATIONALITY	ADDRESS
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The following specification describes the invention and the manner in which it is to be performed

## **FIELD OF INVENTION**

The present invention relates to the field of designing and implementing an IOT based crop monitoring scheme using smart devices along with the machine learning methodology. The proposed invention focuses on supporting the farmers and help them make accurate and efficient crop management decisions with help of results obtained by using the smart device called intelligent crop monitoring device (ICMD).

## **BACKGROUND OF INVENTION**

[0001] Background description includes information that may be useful in understanding the present invention. It is not an admission that any of the information provided herein is prior art or relevant to the presently claimed invention, or that any publication specifically or implicitly referenced is prior art.

[0002] In India, more than 78% of people belong to the agricultural field and related jobs, so that agriculture plays a vital role in the Indian economy. Similarly, many other countries dependent on this same field, and in rural environments agriculture is a self-employment job to many youngsters as well as it helps to enhance the interest of earn via domestic animals with respect to the food material preparation to the animals based on the agricultural wastes. Changes in climate might have a severe influence on agricultural production, raising water requirements as well as constraining agricultural output in places that are in need of irrigation. Desalination plants, moisture farmland, and subsoil watering are just a few of the strategies used to create healthier harvests that are inefficient with water consumption.

[0003] To ensure effective water consumption, a computerized system is built. In the method, farmers do not have to physically direct water supply into fields; the technology does so successfully. In literature, there are several researchers who introduced lots of systematic agricultural planning, but all are struck up with certain extends. The traditional crop monitoring system utilizes the benefits of water supply through a mobile

SMS-based system as well as the auto power on and power off principles to agricultural land. But all these features are purely manual dependent and the expense for such systems is high in order to implement that in farmlands. These kinds of traditional farming systems lead to lots of water and electric resource wastages. The power supply requirements of such devices are huge and they cannot operate during power failure periods. So, that conventional agricultural monitoring devices need Solar PV panels for acquiring power sources from sunlight and operate accordingly in power failure situations. But these all solutions are coming to one single point called cost expensiveness.

**[0004]** In order to avoid these issues a powerful and robust agricultural monitoring system is required with the presence of new technologies. The logic of the Internet of Things (IoT) provides huge support to a variety of smart applications to operate with high efficiency based on the support of internet-enabled services. With respect to the adaptation of such powerful internet-enabled devices, smart technology is designed to monitor the agricultural field in an efficient manner without any manual interventions.

**[0005]** A number of different types of crop monitoring systems are known in the prior art. For example, the following patents are provided for their supportive teachings and are all incorporated by reference.

**[0006]** CN104852989A The present invention relates to a smart agriculture monitoring system based on a Web of Things. The system includes a CPU, connected with a smart sensor, a smart adjusting and controlling device, a real-time image, and video monitoring apparatus, a transmission apparatus, an alarm system, and a terminal; the CPU is connected with the smart sensor, the smart adjusting and controlling device, the real-time image and video monitoring apparatus, the transmission apparatus, the alarm system and the terminal via the wireless network controlling system; and the smart agriculture monitoring system is powered via a solar energy powering apparatus.

The Web of Things agriculture smart detection and control system can greatly increase manufacturing and managing efficiency, save manpower, and can conveniently provide a strong scientific data theoretical support to aspects such as various agricultural fields or researches; and the important function thereof is obvious in the highly automated and intelligent zed society.

**[0007]** WO2014107797A1 A mesh-based wireless network (10) of sensor/actuator devices I, D, T for an agricultural production area involves battery-powered sensors and actuators deployed under or within the foliage for broadcast communication with at least one repeater R according to broadcast time slots. The repeaters R are mounted above the vegetation canopy so as to be powered by solar panels. The repeaters R form a mesh network for routing data and commands to and from the sensors and actuators and at least one gateway GW. The gateway communicates over a cellular network with a remote agricultural management server and database.

**[0008]** CN105573277A The invention discloses an Internet of Things intelligent irrigation system based on cloud computing. The system comprises an intelligent irrigation cloud service platform, an intelligent irrigation cloud data centre, an Internet of Things terminal management controller, and an irrigation device, the irrigation device, and a sensor are both connected with the Internet of Things terminal management controller, the Internet of Things terminal management controller is connected with the intelligent irrigation cloud data centre via a wireless network, a user logs in the intelligent irrigation cloud service platform for obtaining service via the network, the intelligent irrigation cloud service platform is deployed in the intelligent irrigation cloud data centre, and the intelligent irrigation cloud service platform provides service for the user. According to the system, the conception is novel, advanced cloud computing, the Internet of Things, big data, mobile application, and the artificial intelligence technology are employed, the system is simple,

easy, and convenient, the timeliness is good, the networking is convenient, the reliability is high, the transmission rate is fast, and the advanced Internet of Things intelligent irrigation system based on cloud computing is provided for the application and promotion of the technologies of cloud computing and Internet of Things in the water conservancy industry.

**[0009]** The proposed invention is to introduce a new smart device called Intelligent Crop Monitoring Device (ICMD), which utilizes the logic of machine learning to perform perfect farming strategies with excellent predictions. A new machine learning strategy is designed over this paper called Modified Learning-based Field Analysis Strategy (MLFAS), in which it is derived from the classical machine learning strategy called Convolutional Neural Network. The smart device of ICMD is built with two smart agricultural field monitoring sensors such as Temperature and Humidity measurement sensor and the Soil Moisture Level Identification Sensor. The smart device of ICMD requires only a 5v DC power source for the entire operation, in which all these sensors are controlled by the IoT module presented into it. The logic of both the sensors and the presence of the Internet of Things in it will be explained in a clear manner over the following summary.

**[0010]** The above information is presented as background information only to assist with an understanding of the present disclosure. No determination has been made, no assertion is made, and as to whether any of the above might be applicable as prior art with regard to the present invention.

**[0011]** In the view of the foregoing disadvantages inherent in the known types of crop monitoring system now present in the prior art, the present invention provides an improved system. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new and improved IoT-based crop monitoring scheme using a smart device with machine learning methodology that has



all the advantages of the prior art and none of the disadvantages.

## **SUMMARY OF INVENTION**

**[0012]** In the view of the foregoing disadvantages inherent in the known types of crop monitoring scheme now present in the prior art, the present invention provides an improved and IOT based crop monitoring scheme. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new and improved IoT-based crop monitoring scheme using a smart device with machine learning methodology which has all the advantages of the prior art and none of the disadvantages.

**[0013]** The proposed invention is focused on designing a novel agricultural monitoring system based on a machine learning strategy with respect to the latest technologies such as the Internet of Things and smart sensors. This approach introduced a new machine learning-enabled agricultural field monitoring tool called Intelligent Crop Monitoring Device (ICMD), in which it is placed into the Agri-fields in a random manner as approximately a single ICMD device can cover up to 20 feet distance. The readings accumulated from the smart device are communicated to the centralized remote IoT server by using the IoT module presented into the ICMD. In the server end, a new machine learning strategy is executed called Modified Learning-based Field Analysis Strategy (MLFAS), in which it accumulates the data from the crop field and analyzes it based on the trained model.

**[0014]** Yet another aspect of the proposed invention is that the training model is generated based on the threshold values generated for identifying the emergency needs over agricultural fields. All the received values from the agricultural land are monitored and they will be appended to the training model with proper labeling for the further testing process. The testing records acquired from the ICMD over the remote server end will be cross-validated with respect to these trained models and the emergency cases will be reported properly to the farmers

by using Global System for Mobile Communications (GSM) module connected with the ICMD. In which the alert will be sent to the respective farmer with location details as well by using the Global Positioning System (GPS) module.

**[0015]** Yet another important aspect of the said invention is that the soil moisture sensor takes care of crop watering management, in which it switches on and off the water pump according to the needs of water to the agricultural land without any human intervention. The following system flow diagram illustrates the overall process of the proposed MLFAS model in a clear manner.

**[0016]** In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

**[0017]** These together with other objects of the invention, along with the various features of novelty that characterize the invention, are pointed out with particularity in the disclosure. For a better understanding of the invention, its operating advantages, and the specific objects attained by its uses, reference should be had to the accompanying drawings and descriptive matter in which there are illustrated preferred embodiments of the invention.

#### **BRIEF DESCRIPTION OF DRAWINGS**

**[0018]** The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

Figure 1 illustrates the ICMD Block Diagram of an IOT based crop monitoring scheme using a smart device with machine learning

methodology, according to the embodiment herein.

Figure 2 illustrates the DHT11 Sensor with Resistor of an IOT based crop monitoring scheme using a smart device with machine learning methodology, according to the embodiment herein.

Figure 3 illustrates the Soil Moisture Sensor of an IOT based crop monitoring scheme using a smart device with machine learning methodology, according to the embodiment herein.

Figure 4 illustrates the MLFAS Work Flow Diagram of an IOT based crop monitoring scheme using a smart device with machine learning methodology, according to the embodiment herein.

Figure 5 illustrates the Frame Success Ratio of an IOT based crop monitoring scheme using a smart device with machine learning methodology, according to the embodiment herein.

Figure 6 illustrates the Data Ratio Analysis of an IOT based crop monitoring scheme using a smart device with machine learning methodology, according to the embodiment herein.

Figure 7 illustrates the Alert Notification Analysis with respect to Identified Abnormal Data of an IOT based crop monitoring scheme using a smart device with machine learning methodology, according to the embodiment herein.

## **DETAILED DESCRIPTION OF INVENTION**

[0019] In the following detailed description, reference is made to the accompanying drawings which form a part hereof, and in which is shown by way of illustration specific embodiments in which the invention may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that the embodiments may be combined, or that other embodiment may be utilized, and that structural and logical changes may be made without departing from the spirit and scope of the present invention. The following detailed description is, therefore, not to be

taken in a limiting sense, and the scope of the present invention is defined by the appended claims and their equivalents.

**[0020]** While the present invention is described herein by way of example using several embodiments and illustrative drawings, those skilled in the art will recognize that the invention is neither intended to be limited to the embodiments of drawing or drawings described nor intended to represent the scale of the various components. Further, some components that may form a part of the invention may not be illustrated in certain figures, for ease of illustration, and such omissions do not limit the embodiments outlined in any way. It should be understood that the drawings and detailed description thereto are not intended to limit the invention to the particular form disclosed, but on the contrary, the invention covers all modification/s, equivalents, and alternatives falling within the spirit and scope of the present invention as defined by the appended claims. The headings are used for organizational purposes only and are not meant to limit the scope of the description or the claims. As used throughout this description, the word "may" be used in a permissive sense (i.e., meaning having the potential to), rather than the mandatory sense (i.e., meaning must). Further, the words "a" or "an" mean "at least one" and the word "plurality" means one or more unless otherwise mentioned. Furthermore, the terminology and phraseology used herein are solely used for descriptive purposes and should not be construed as limiting in scope. Language such as "including," "comprising," "having," "containing," or "involving," and variations thereof, is intended to be broad and encompass the subject matter listed thereafter, equivalents, and any additional subject matter not recited, and is not intended to exclude any other additives, components, integers or steps. Likewise, the term "comprising" is considered synonymous with the terms "including" or "containing" for applicable legal purposes. Any discussion of documents, acts, materials, devices, articles, and the like are included in the specification solely for the purpose of providing a context for the present

invention.

**[0021]** In this disclosure, whenever an element or a group of elements is preceded with the transitional phrase "comprising", it is understood that we also contemplate the same element or group of elements with transitional phrases "consisting essentially of", "consisting", "selected from the group consisting of", "including", or "is" preceding the recitation of the element or group of elements and vice versa.

**[0022]** The proposed invention is intended to design the new machine learning-enabled Smart Internet of Things medium to support the agricultural field in a proper way. In this paper, an Intelligent Crop Monitoring Device (ICMD) is introduced to monitor the crops over the agricultural field in a 24x7 manner. This kind of monitoring device enhances the production and quality-of-service of agriculture as well as related products. This paper associate an innovative technology to the Smart Device called Machine Learning, but instead of using the classical learning schemes, this approach introduced a new scheme called Modified Learning-based Field Analysis Strategy (MLFAS). This approach is inspired by the classical machine learning scheme called Convolutional Neural Network (CNN), in which the proposed Smart Device called ICMD accumulates the real-time agricultural field details and passes them to the monitoring unit for manipulation. The manipulation end maintains the data into the server unit, in which the machine learning model called MLFAS acquires the received field data and processes it based on the training samples. The training samples are nothing but data collected from the agriculture field, the collection of received data are maintained into the server end for processing, the proposed MLFAS model manipulates the data and is created as a model for further testing. The newly arrived data from the field is considered as testing data and cross-validate that data into the trained model. The data acquired from the agriculture fields are temperature, humidity, and soil moisture level, in which these records are passed to the server unit by

using an IoT module associated with the ICMD. The data available on the server can easily be monitored by the farmer from anywhere at any time. The learning model predicts the status of the crop in the field by means of analyzing the input acquired from the real-time testing input and report that to the respective farmer for taking appropriate action. For all this system is useful to the agricultural field and provides good support to farmers to monitor the crops over the agricultural field from the remote place even. By using this proposed scheme, the farmers can make accurate and efficient crop management decisions with the use of results obtained by using the Smart Device called ICMD.

**[0023]** In these modern days, everyone belongs to Smart Devices and many of them are building with communication technologies in association with internet-enabled services. The classical internet-enabled medium provides connectivity in a low range, as well as the cost expensiveness for such technology, is more. Hence the powerful Internet of Things (IoT) is introduced to provide internet services to smart devices without any interventions. The logic of the Internet of Things is enabling the internet source to the associated device and raises a bridge between the client end and the server end. In this agricultural monitoring system, the adaptation of this IoT is helpful in many ways such as manual intervention-free agricultural field monitoring, automatic watering system, and water flow management.

**[0024]** This kind of IoT-enabled technology reduces human involvement in the complex as well as the complexity of doing such hard things is highly eliminated. So, that many youngsters are interested to do such agriculture business nowadays with the help of such smart devices. The proposed smart device called Intelligent Crop Monitoring Device (ICMD) utilizes the features of such Internet of Things to transfer the agricultural field data to the remote server within a fraction of a second in a periodical manner. Once the data is reached into the server end, the scripting function evaluates the data with respect to machine learning

formulations. The results of such evaluations are reported properly to the respective farmer without any delay. This is helpful to the farmers to monitor the agricultural field from anywhere in the world without any region-oriented limitations.

**[0025]** The DHT11 is a less expensive digital temperature and humidity monitoring sensor with a low-complex circuit design and measures the atmospheric air through the use of a capacitance temperature measurement and a resistor as well as outputs a signal on the data pin in digital format. This sensor does not require any analog pins to operate and it's quite straightforward to use, however, data collection demands precision scheduling. Because it updates data every two seconds, input signals could become up to two seconds old whilst using the Adafruit package. This sensor includes a 4.7 K or else 10 K resistor which is used as a pull-up resistor between the digital pins and power supply.

**[0026]** This sensor estimates the level of moisture presents in the soil and report that to the respective controller instantly. Capacitive coupling is used to determine the water content over the soil surface and by estimating the dielectric conductivity of the soil, which is a method of water level estimation over the soil space. Simply insert this robust sensing device into the soil to be analyzed and the device reports the volume of water substance level over the soil surface in percentages. This sensor can be used to read both analog and digital values according to the convenience of the developer. The remaining two pins are used for a power source such as GND and VCC, in which GND indicates the ground and VCC indicates the 5v DC power supply.

**[0027]** The following algorithm illustrates the logical flow of the proposed approach called Modified Learning-based Field Analysis Strategy in a clear manner.

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Algorithm: Modified Learning-based Field Analysis Strategy

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Input: Real-Time Agricultural Data {Temperature (T), Humidity (H), Soil Moisture Level (W) and Location (L)}

Output: Prediction and Accuracy Ratio of Agricultural Crop

1. Import required system libraries to manipulate the agricultural land details.
  2. Collect the agri-field data from the real-time farmland (T, H, W, and L).
  3. Extract the details with respect to commas and segregate them in separate array indexing for manipulation.
  4. Load the dataset, in which it is already trained by using learning strategy and the dataset is dynamically created based on the real-time data accumulated from the agricultural land.
  5. Acquire the threshold levels of the dataset for each parameter such as T, H, and W.
  6. Cross-validate the testing parameters with an acquired threshold.
  7. If the threshold level indicates as Normal, then store the testing records into the server and append them to the dataset model for further reference.
  8. If the threshold level indicates as Abnormal, then store the testing records into the server and alert the respective farmer regarding that with the corresponding ICMD location (L).
  9. Append the abnormal details into the trained model with proper labeling.
  10. Check the level of parameter 'W' and if it indicates LOW means trigger the corresponding relay ON to switch the water pump or else switch off the water pump.
- 

**[0028]** Reference will now be made in detail to the exemplary embodiment of the present disclosure. Before describing the detailed embodiments that are in accordance with the present disclosure, it should be observed that the embodiment resides primarily in combinations arrangement of the system according to an embodiment herein and as exemplified in FIG. 1



- [0029]** Figure 1 illustrates the ICMD Block Diagram of IoT based crop monitoring scheme using a smart device with machine learning methodology. Portrays the view of the proposed Smart Device called ICMD's block diagram in a clear manner.
- [0030]** Figure 2 illustrates the DHT11 Sensor with Resistor of an IoT-based crop monitoring scheme using a smart device with machine learning methodology. The perception of the DHT11 sensor and the respective resistor used to operate the sensor in a clear manner.
- [0031]** Figure 3 illustrates the Soil Moisture Sensor of IoT-based crop monitoring scheme using a smart device with machine learning methodology. The perception of the Soil Moisture sensor and the associated specifications used to operate the sensor in a clear manner.
- [0032]** Figure 4 illustrates the MLFAS Work Flow Diagram of IoT based crop monitoring scheme using a smart device with machine learning methodology.
- [0033]** Figure 5 illustrates the Frame Success Ratio of IoT based crop monitoring scheme using a smart device with machine learning methodology. The frame success ratio of the proposed approach, in which it shows the overall data frames accumulated from the ICMD and estimates the number of frames which are successfully processed over the server end as well as the number of frames that failed to receive over the server end.
- [0034]** Figure 6 illustrates the Data Ratio Analysis of an IoT-based crop monitoring scheme using a smart device with machine learning methodology. the data ratio analysis of the proposed approach, which it shows the normal agricultural field data acquired from the Intelligent Crop Monitoring Device and the quantity of abnormal field data received from the ICMD. This analysis is useful for estimating the dataset training accuracy level, in which the number of data presented into the dataset determines the quality of prediction over the outcome.

[0035] Figure 7 illustrates the Alert Notification Analysis with respect to Identified Abnormal Data of IoT-based crop monitoring scheme using a smart device with machine learning methodology. portrays a graphical representation of the proposed approach performance estimation with respect to the alert notification ratio based on time evaluations in seconds. In this case, the metric is evaluated by counting the number of normal data occurrences raised from the smart device called ICMD and it is placed over the desired server location. So, that the respective notification sends to the farmer for particular time intervals. This estimation is performed by detecting the abnormal data ratio from the real-time agricultural field information, in which it detects the appropriate number of farmers who receive alerts in the proper manner. These temporal values are studied and illustrated in-depth in the following graphical scenario and the estimations display the average time ratio of the number of abnormal events in occurred in a specific period. It will be iterated from 1 to 5, while the y-axis displays the total number of identified abnormal events, the associated alert notification messages delivered to farmers, and the total number of failures.

[0036] In the following description, for the purpose of explanation, numerous specific details are set forth in order to provide a thorough understanding of the arrangement of the system according to an embodiment herein. It will be apparent, however, to one skilled in the art that the present embodiment can be practiced without these specific details. In other instances, structures are shown in block diagram form only in order to avoid obscuring the present invention.

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## **WE CLAIM**

1. IoT based crop monitoring scheme using a smart device with machine learning methodology comprises of  
DHTIL sensor;  
Soil moisture sensor;  
IoT module with the controller;  
GPS and GSM module;  
And Remote IoT server.
2. IoT-based crop monitoring scheme using a smart device with machine learning methodology according to claim 1, comprises of a DHTII sensor wherein the temperature and humidity of the specific crop fields.
3. IoT-based crop monitoring scheme using a smart device with machine learning methodology according to claim 1, comprises of soil moisture sensor, wherein the soil moisture sensor is used to measure the moisture content of the soil in a particular crop field.
4. IoT based crop monitoring scheme using a smart device with machine learning methodology according to claim 1, includes an IOT module wherein IOT module facilitates communication with uses module and she IOT modules comprises of a controller which is an inbuilt- controller responsible for establishing and coordinating the various activities of proposed smart device.
5. IoT-based crop monitoring scheme using a smart device with machine learning methodology according to claim 1, includes GSM and GPS unit wherein the GSM and GPS unit facilitates the IoT based subscriber module and location positioning and tracking respectively.

6. IoT-based crop monitoring scheme using a smart device with machine learning methodology remote IoT server according to claim 1, comprises of IoT server wherein the server facilitates the communication between the sensor and saves the details regarding the crops in it.

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## **ABSTRACT**

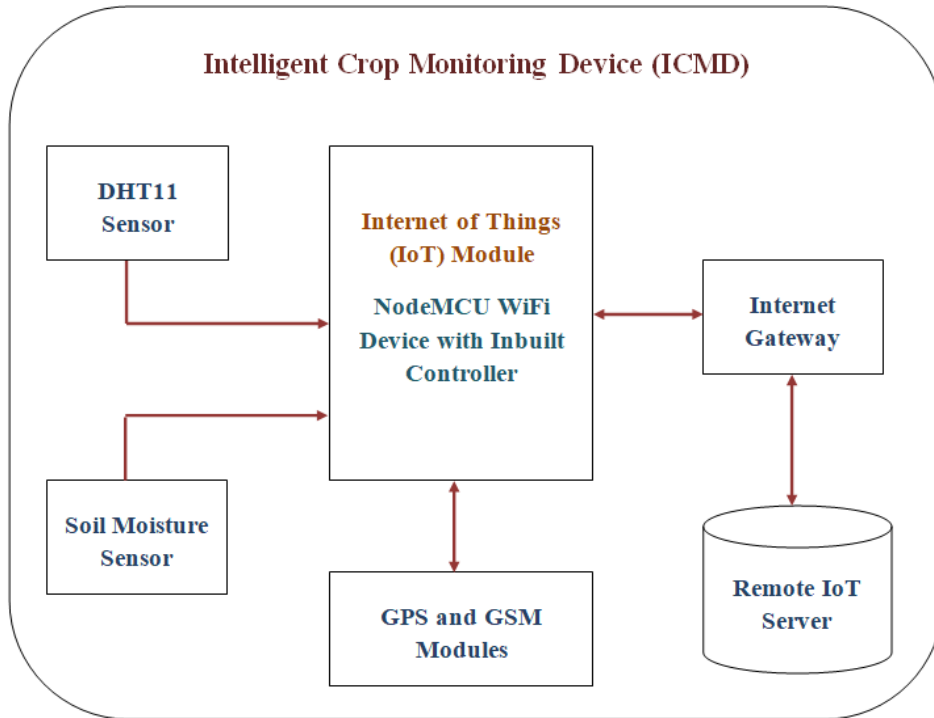
### **IOT BASED CROP MONITORING SCHEME USING SMART DEVICE WITH MACHINE LEARNING METHODOLOGY**

IoT-based crop monitoring scheme using a smart device with machine learning methodology. The proposed invention is the Internet of Things (IoT) is the most considerable medium for all smart applications, in which it provides huge support to the agricultural industry in a fine manner. The proposed invention is intended to design the new machine learning-enabled Smart Internet of Things medium to support the agricultural field in a proper way. In the proposed invention an Intelligent Crop Monitoring Device (ICMD) is introduced to monitor the crops over the agricultural field in a 24x7 manner. This kind of monitoring device enhances the production and quality-of-service of agriculture as well as related products. The data acquired from the agriculture fields are temperature, humidity, and soil moisture level, in which these records are passed to the server unit by using an IoT module associated with the ICMD. The data available on the server can easily be monitored by the farmer from anywhere at any time. The learning model predicts the status of the crop in the field by means of analyzing the input acquired from the real-time testing input and report that to the respective farmer for taking appropriate action. For all this system is useful to the agricultural field and provides good support to farmers to monitor the crops over the agricultural field from the remote place even. By using this proposed scheme, the farmers can make accurate and efficient crop management decisions with the use of results obtained by using the Smart Device called ICMD.

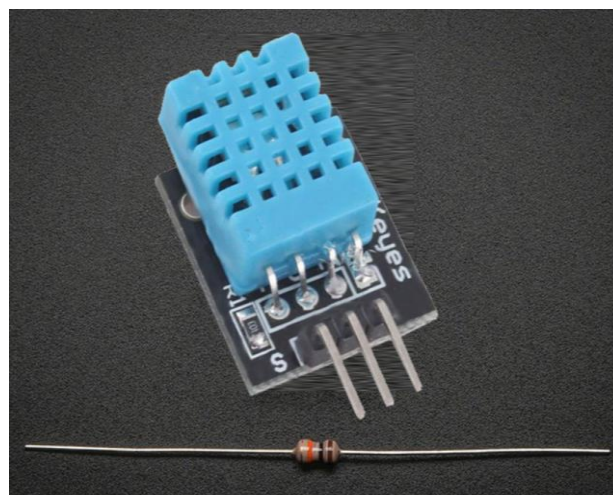
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Total Sheets 4  
Sheets 1 of 4



**Fig.1 ICMD Block Diagram**

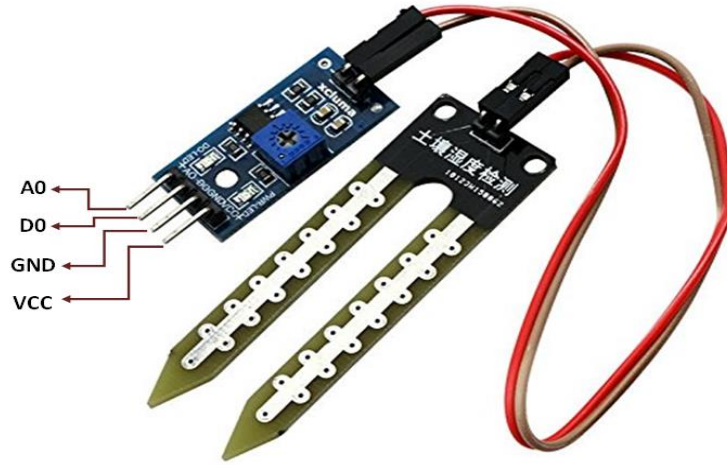


**Fig.2 DHT11 Sensor with Resistor**

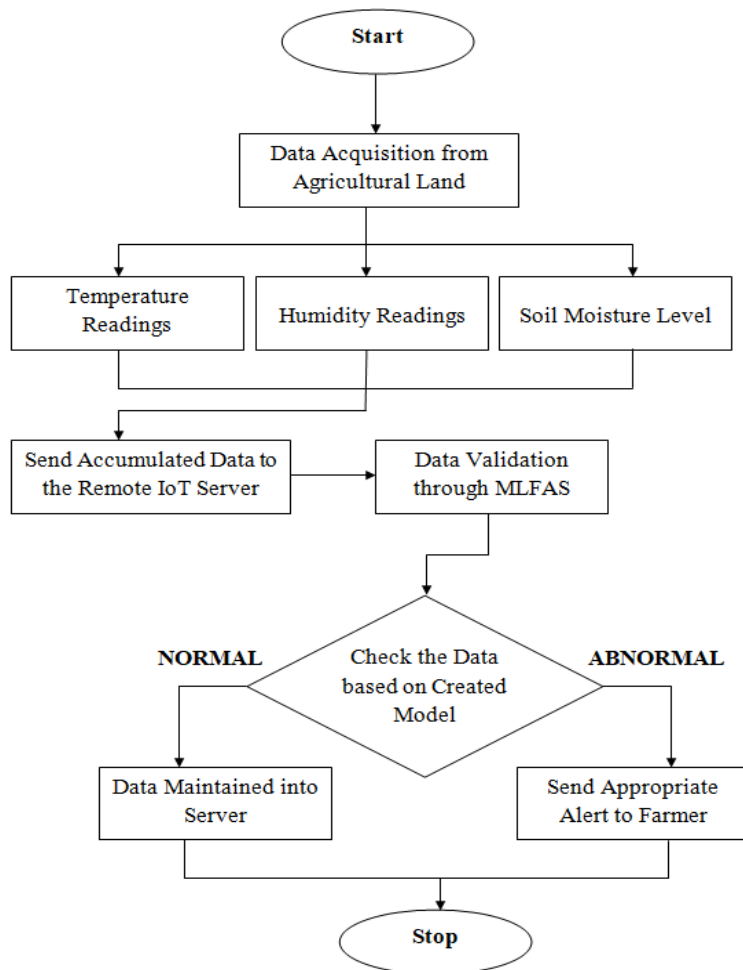
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**Fig.3 Soil Moisture Sensor**

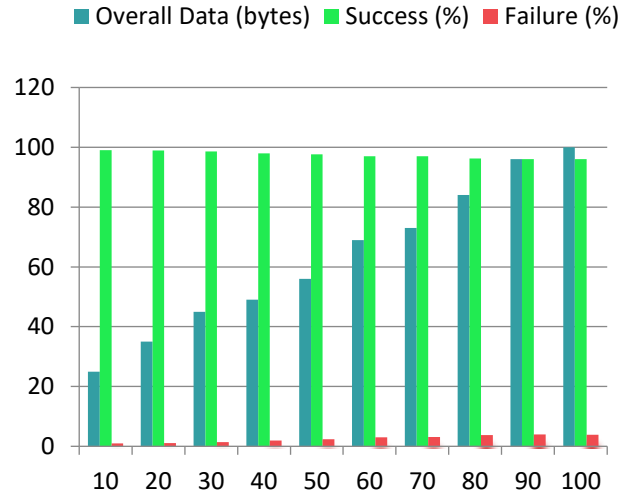


**Fig.4 MLFAS Work Flow Diagram**

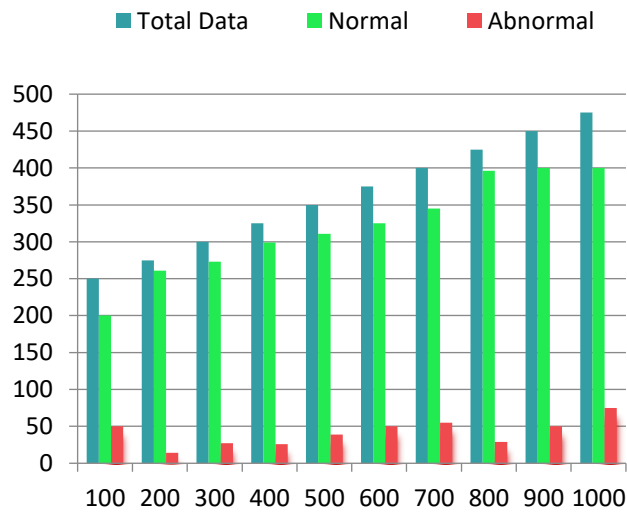
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Total Sheets 4  
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**Fig.5 Frame Success Ratio**

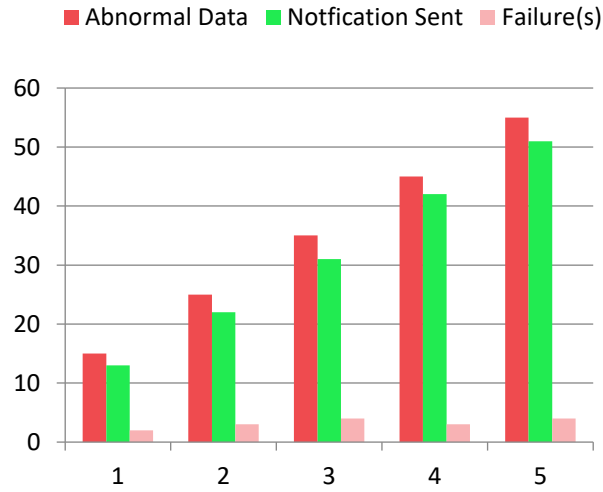


**Fig.6 Data Ratio Analysis**



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**Fig. 7 Alert Notification Analysis with respect to Identified Abnormal Data**

(54) Title of the invention : **IoT Based Secured and Energy- Efficient Routing Protocols using Wireless Sensor Networks (WSNs)**

(51) International classification :H04W0084180000, H04W0052020000, H04L0029060000, H04W0040100000, H04W0004380000

(86) International Application No :PCT/  
 Filing Date :01/01/1900

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
 Filing Date :NA

(62) Divisional to Application Number :NA  
 Filing Date :NA

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(57) Abstract :  
 IoT Based Secured and Energy- Efficient Routing Protocols using Wireless Sensor Networks (WSNs) Abstract: Certain sensors in wireless sensor networks (WSNs) operate on a finite amount of power. Sensors become inoperable when their batteries run out. This is a significant flaw in the design of WSNs. As a result, it is said that the most critical characteristic of a wireless sensor network protocol is its energy consumption (WSNs). Energy-efficient, secure, and dependable sensor network protocols are required because battery-powered sensors have limited battery life and are exposed to harsh environments. Routing is the most energy-intensive network protocol by far. Data transmission accounts for roughly 70% of the total energy consumed by WSNs. They are challenging to solve due to scarce resources, the absence of a global solution scheme, and the fact that WSNs are used for a single application. Additionally, WSN security is a significant issue due to the frequency with which sensors are installed and used in unsafe environments, making them vulnerable to security attacks. Numerous routing protocols currently in use incorporate built-in security measures to ensure that their security objectives are met. It discusses the operation of these protocols, as well as their fundamental principles and characteristics.

No. of Pages : 11 No. of Claims : 7

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(21) Application No.202241024357 A

(19) INDIA

(22) Date of filing of Application :25/04/2022

(43) Publication Date : 27/05/2022

(54) Title of the invention : **Smart Parking System Using AI of Things (AIOT)**

(51) International classification :G08G0001140000, E04H0006340000, B60W0030060000, E04H0006300000, G06Q0020320000

(86) International Application No :PCT//  
Filing Date :01/01/1900

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
An automated parking system is a system that is capable of parking, transferring, storing, and retrieving a large number of cars. At least one communication system includes a tracking system and a transport system that includes at least one vehicle-transporting movable transporter and at least one vertical transportation facility for transporting the vehicle-transporting movable transporter. The automated parking system creates a parking scheme that includes at least one vacant parking space in a parking area. The unoccupied parking space is determined by determining the number of vehicles in the parking area.

No. of Pages : 20 No. of Claims : 4

(54) Title of the invention : **AI BASED E-VEHICLE BATTERY POWER MANAGEMENT SYSTEM**

<p>(51) International classification</p> <p>(31) Priority Document No</p> <p>(32) Priority Date</p> <p>(33) Name of priority country</p> <p>(86) International Application No Filing Date</p> <p>(87) International Publication No</p> <p>(61) Patent of Addition to Application Number Filing Date</p> <p>(62) Divisional to Application Number Filing Date</p>	<p>:G01R0031367000, H01M0010420000, H02J0007000000, G01R0031384200, G01R0031382800</p> <p>:NA</p> <p>:NA</p> <p>:NA</p> <p>:NA</p> <p>:NA</p> <p>: NA</p> <p>:NA</p> <p>:NA</p> <p>:NA</p> <p>:NA</p> <p>:NA</p>	<p>(71)Name of Applicant :</p> <p><b>1)Dr.Kedri Janardhana</b> Address of Applicant :Assistant Professor (Senior Grade), Department of Electrical Engineering, Faculty of Engineering, Dayalbagh Educational Institute (Deemed to be University), Dayalbagh, Agra, Uttar Pradesh, 282005, India Uttar Pradesh India</p> <p><b>2)Mrs.Rekha Baghel</b></p> <p><b>3)Dr.T.Vinoth Kumar</b></p> <p><b>4)Dr. K. Rajeshwar Rao</b></p> <p><b>5)Dr.T.Vandarkuzhali</b></p> <p><b>6)Mr.Saravanan D</b></p> <p><b>7)Mr. Aruna kumar Joshi</b></p> <p><b>8)Mrs.B.S.Nalina</b></p> <p><b>9)Mrs.S.L.Sreedevi</b></p> <p><b>10)K.Saravanan</b></p> <p>(72)Name of Inventor :</p> <p><b>1)Dr.Kedri Janardhana</b></p> <p><b>2)Mrs.Rekha Baghel</b></p> <p><b>3)Dr.T.Vinoth Kumar</b></p> <p><b>4)Dr. K. Rajeshwar Rao</b></p> <p><b>5)Dr.T.Vandarkuzhali</b></p> <p><b>6)Mr.Saravanan D</b></p> <p><b>7)Mr. Aruna kumar Joshi</b></p> <p><b>8)Mrs.B.S.Nalina</b></p> <p><b>9)Mrs.S.L.Sreedevi</b></p> <p><b>10)K.Saravanan</b></p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

(57) Abstract :

Since a battery's power is small, specialized techniques must be used to accurately estimate the State of Charge (SoC) to maintain the battery comfortably charged and discharged at a reasonable level while still maximizing its life cycle. Many useful methods for conducting SoC estimation in this invention, including Coulomb counting, Open Circuit Voltage (OCV), and the Kalman Filter method; then we suggest an Artificial Intelligence (AI) methodology that can be used to efficiently calculate the SoC estimation for the smart battery management framework as discussed it. We suggest that we use our suggested methodology to achieve a more precise SoC calculation for the smart battery management method.

No. of Pages : 22 No. of Claims : 5

# 2021-2022

List of Coordinators:

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Mr.S.Saravanan	CSE
Mrs.Divya Bharthi	ECE
Mr.R.Tamilamuthan	EEE
Mr.Saravanan	MECHANICAL
Mrs.Malathi	S&H



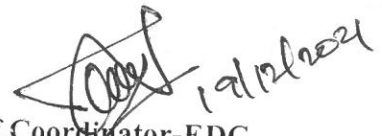
## ENTREPRENEURSHIP DEVELOPMENT CELL

Letter No: PERIIT/EDC/2021-2022/MOM/001

09-12-2021

### Circular

All the Department Coordinators are requested to attend the meeting in EDC regarding One Million Ideas & E-Learning Program on 10-12-2021 at 1.00 pm.

  
Chief Coordinator-EDC

Copy to:

- Principal
- Vice Principal
- HODs of all departments
- EDC Department Coordinators

**ENTREPRENEURSHIP DEVELOPMENT CELL**

Minutes of the Meeting

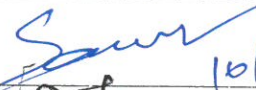
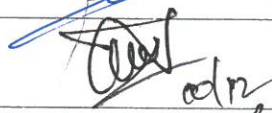
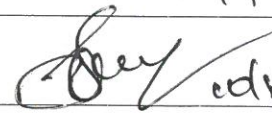
Date: 10.12.2021

Time: 01.00 pm

Venue: EDC

The following are the topics discussed during the meeting:

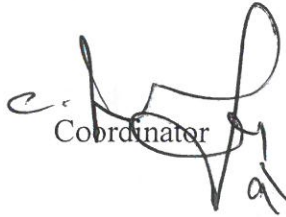
1. The cell has planned to conduct One Million Ideas & E-Learning Program on 13-12-2021
2. Assign 2 students as coordinators from each department, those who are interested within the idea about EDC.
3. Shortlist the students name list for EDC from every department.
4. Coordinators, should motivate and promote the students have idea about EDC.
5. Coordinators, give the guideline for the EDC students for pattern wrights.
6. Coordinators monitor the EDC students frequently and based on your time slot.
7. Make a hard copy of EDC students following details:  
i) Name, ii) Community iii) Date of birth, iv) Address, v) Parent mobile number vi) Age of students vii) Student contact number.

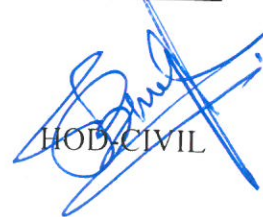
Department Coordinators	Signature:
Mr.S.Saravanan-CSE-AP	 10/12/21
Mr.R.Tamilamuthan-EEE-AP	 adn
Mrs.Divya Bharthi-ECE-AP	S. Divya Bk 10/12/21
Mrs.Malathi-S/H-AP	G.M. 10/12/21
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Chief Coordinator-EDC

Principal

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15	411518114047	Rohit Ragav S S	IV MECH

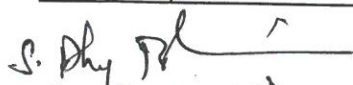
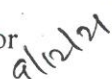
Coordinator

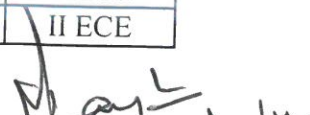



HOD/MECH



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20	411519106015	Merlin P	III ECE
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24	411520106032	Pradeepkumar.A	II ECE
25	411520106045	Tholkappiyan.B	II ECE
26	411520106048	Vadlamani Dinesh	II ECE
27	411520106039	Sivaprakash.S	II ECE
28	411520106049	Vidhya.S	II ECE
29	411520106004	R.Arunraj	II ECE
30	411520106019	Indujaa.R	II ECE
31	411520106037	Shalini .N	II ECE
32	411520106020	Janaki.D	II ECE
33	411520106001	M.Abinaya	II ECE
34	411520106015	Vikash G	II ECE
35	411520106010	D.Vasanthi	II ECE
36	411520106307	P.Swetha	II ECE
37	411520106047	R. Uppili	II ECE
38	411520106005	B.Ashwin	II ECE


S. Dhy   
Coordinator 

  
HOD-ECE 

PERI INSTITUTE OF TECHNOLOGY			
PERIIT-EDC			
2021-2022			
EEE Department EDC students name list			
S.No.	Register no.	Name	Class
1	411518105002	Ahalya M	4 EEE
2	411518105003	Askar Ali T	4 EEE
3	411518105004	Bharathi M	4 EEE
4	411518105005	Dasaradhan S	4 EEE
5	411518105006	Dharanimaran A	4 EEE
6	411518105010	Magesh B K	4 EEE
7	411518105011	Mohanasri L	4 EEE
8	411518105012	Mukesh E	4 EEE
9	411519105006	Hariharan.R	3 EEE
10	411519105003	Balaji.S	3 EEE
11	411519105002	Archana Jenifer.C	3 EEE
12	411519105008	Ponnarasi.K	3 EEE
13	411519105001	Abimanyu.S	3 EEE
14	411519105010	Surya.P	3 EEE
15	411519105011	Vinoth Kumar.M	3 EEE
16	411519105006	Hariharan.R	3 EEE
17	411519105003	S.Balaji	3 EEE
18	411519105002	Archana Jenifer.C	3 EEE
19	411519105008	K.Ponnarasi	3 EEE
20	411519105001	S.Abimanyu	3 EEE
21	411519105010	P.Surya	3 EEE
22	411519105011	M.Vinothkumar	3 EEE
23	411520105017	Vigneshwaran.G	2 EEE
24	411520105014	E.Saravanan	2 EEE
25	411520105012	R.Rajkumar	2 EEE
26	411520105309	P.Harish	2 EEE
27	411520105310	R.Harish	2 EEE
28	411520105319	S.Nivetha	2 EEE
29	411520105301	B.Abishek samuel	2 EEE
30	411520105007	R.Krishnakumar	2 EEE

Coordinator

  
09/12/21

  
HOD-EEE 9/12

PERI INSTITUTE OF TECHNOLOGY			
PERIIT-EDC			
CSE Department EDC Students name list 2021-22			
S.No.	Register no.	Name	Year
1	411518104010	Anand.C	IV CSE
2	411518104012	Anirudh.R.K	IV CSE
3	411518104014	Ashwin Balaji.S	IV CSE
4	411518104016	Balarishi.S	IV CSE
5	411518104028	Gokul Krishnan	IV CSE
6	411518104031	Gurunath.M	IV CSE
7	411519104037	Kishore.V	III CSE
8	411519104045	Manikandan.V	III CSE
9	411519104048	Mohamed Hameed.N	III CSE
10	411519104049	Mukesh.B	III CSE
11	411519104054	Naveen.I	III CSE
12	411519104099	Dhaneshkumar.M	III CSE
13	411520104001	Aarthy.K.P	II CSE
14	411520104052	Lavanya S	II CSE
15	411520104305	Madhavan.M	II CSE
16	411520104038	Kamalesh.B	II CSE
17	411519104043	Manasa.A	II CSE
18	411520104035	Jayashree.N	II CSE
19	411520104012	Arun Kumar G	II CSE
20	411520104021	Dhana Sehwac R	II CSE
21	411520104702	Tanuj	II CSE
22	411520104701	Jaydeep	II CSE
23	411520104091	M. Siva Sabarishwari	II CSE
24	411520104069	R.M.Nithin Karthi	II CSE
25	411520104078	S. Ratthika	II CSE
26	411520104057	Manikandan S	II CSE
27	411520104082	Samuel.I	II CSE
28	411520104083	S.Sanjaana	II CSE
29	411520104073	Praveen Kumar	II CSE
30	411520104070	Nithyasree P	II CSE
31	4115201040108	Vishnu B	II CSE

Coordinator

HOD-CSE

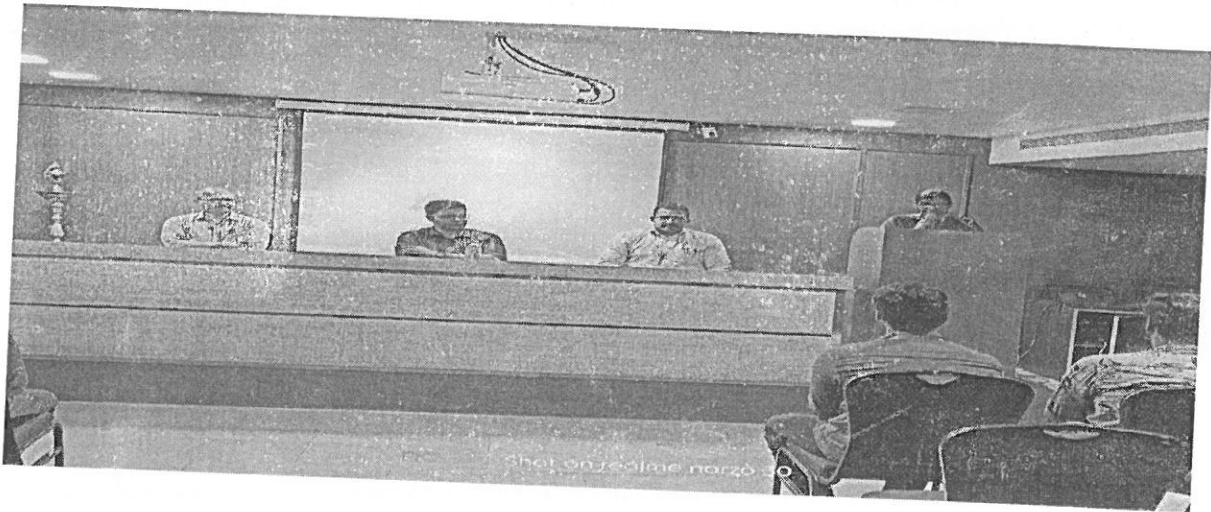
**ENTREPRENEURSHIP DEVELOPMENT CELL**

**“Awareness for TNSI 2021-One Million Ideas and E-learning Program”**

**December 13<sup>th</sup> 2021**

Entrepreneurship Development Cell of PERI Institute of Technology organized one day Seminar on Awareness for TNSI 2021-One Million Ideas and E-learning Program

The inaugural of the event was held with virtual lighting of lamp. The program was started by our respected **Principal Dr.R.Palson Kennedy** and **Vice Principal Mr.B.Magesh**. The chief guests of the programme **Mr Shree Jayaram Field Coordinator, IEDP HUB, MIT Campus**.

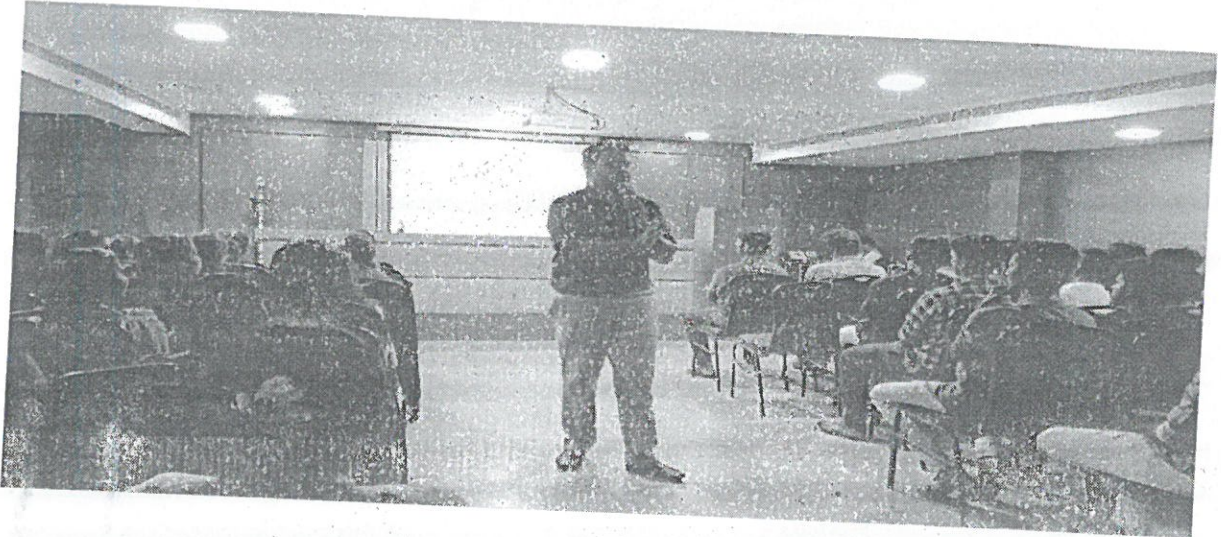


The objective of the program is about evident to the business community itself, but even more so to economy. In order to achieve the growth potential of the economy, students need to take more active role in the economy, be it as entrepreneurs, or as workers.

There were about 130 students who participated in the event and each individual participant discussed about their stand or opinion.

**PERI**  
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**ENTREPRENEURSHIP DEVELOPMENT CELL**





Student's interactive session with guest speaker.

**PERI**  
INSTITUTE OF TECHNOLOGY

**DEC 13**  
2021  
12.30 PM

ENTREPRENEURSHIP DEVELOPMENT CELL  
*Organizes*

**AWARENESS FOR INSI 2021  
ONE MILLION IDEAS & E-LEARNING PROGRAM**



**Chief Guest**  
**Mr. Shree Jayaram**  
FIELD COORDINATOR, IEDP HUB  
MIT CAMPUS, ANNA UNIVERSITY - CHROMPET, CHENNAI

**Mr. SARAVANAN PERIASAMY**  
FOUNDER & CHAIRMAN, PERI EDUCATION  
PRESIDENT & CEO, PERI SOFTWARE SOLUTIONS INC., U.S.A

**Mr. SASI VEERARAJAN**  
CUM PERI EDUCATION

**Dr. R. PALSON KENNEDY**  
PRINCIPAL

**Mr. B. MAGESH**  
VLS PRINCIPAL

**Mr. S. SARAVANAN**  
COORDINATOR - EDC

91505 94111 / 222  
PERI Knowledge Park, Mannivakkam, Chermal - 600048

admissions@peri.education  
www.peri.education

Event flyer

PERI INSTITUTE OF TECHNOLOGY

PERIIT-EDC

2021-2022

Students participant attendance sheet

Event name: Seminar on Awareness for TNSI 2021-One Million Ideas and E-learning Program

Venue: Conference hall

Date: 13.12.2021

S.No.	Register no.	Name	Class	Sign.
1	411520103003	Gokulnath H	2CIVIL	Gokul
2	411520103004	Guneshdharan K	2CIVIL	Guneshdharan
3	411520103007	Saravanan M	2CIVIL	Saravanan
4	411520103306	Kandeeban P	2CIVIL	Kandeeban
5	411519103001	Aarif Ahmed F	3CIVIL	Aarif Ahmed
6	411519103302	Vigneshwaran D	3CIVIL	Vignesh
7	411519103004	Ranjith R	3CIVIL	Ranjith
8	411520104001	Aarthy.K.P	II CSE	Aarthy
9	411520104052	Lavanya S	II CSE	Lavanya
10	411520104305	Madhavan.M	II CSE	Madhavan
11	411520104038	Kamalesh.B	II CSE	Kamalesh
12	411519104043	Manasa.A	II CSE	Manasa
13	411520104035	Jayashree.N	II CSE	Jayashree
14	411520104012	Arun Kumar G	II CSE	Arun Kumar
15	411520104021	Dhana Sehwa R	II CSE	Dhana Sehwa
16	411520104702	Tanuj	II CSE	Tanuj
17	411520106026	Kaviya.A	II ECE	Kaviya
18	411520106038	Siddique.A	II ECE	Siddique
19	411520106032	Pradeepkumar.A	II ECE	Pradeep
20	411520106045	Tholkappiyan.B	II ECE	Tholkappiyan
21	411520106048	Vadlamani Dinesh	II ECE	Vadlamani
22	411520106039	Sivaprakash.S	II ECE	Sivaprakash
23	411520106049	Vidhya.S	II ECE	Vidhya
24	411520106004	R.Arunraj	II ECE	R.Arunraj
25	411520106019	Indujaa.R	II ECE	Indujaa
26	411519105006	Hariharan.R	3 EEE	Hariharan
27	411519105003	Balaji.S	3 EEE	Balaji
28	411519105002	Archana Jenifer.C	3 EEE	Archana Jenifer
29	411519105008	Ponnarasi.K	3 EEE	Ponnarasi
30	411519105001	Abimanyu.S	3 EEE	Abimanyu
31	411519105010	Surya.P	3 EEE	Surya
32	411519105011	Vinoth Kumar.M	3 EEE	Vinoth Kumar
33	411519105006	Hariharan.R	3 EEE	Hariharan
34	411519105003	S.Balaji	3 EEE	Balaji
35	411520114010	E B. Rithik	II MECH	Rithik
36	411520114011	K.Rooban Dharmaraj	II MECH	Rooban Dharmaraj
37	411520114003	Rajesh G	II MECH	Rajesh
38	411520114003	Dharani Varan T	II MECH	Dharani Varan
39	411520114004	Gowtham K	II MECH	Gowtham
40	411520114005	Karthik N	II MECH	Karthik

Chief Coordinator EDC

13/12/21

# PERI

INSTITUTE OF TECHNOLOGY

25 APR 2022  
2:00 PM

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ORGANIZES  
GUEST LECTURE  
ON

## "ENTERPRISE RESOURCE PLANNING"



Resource Person:

**Mrs. J. ROSHAN SANTHOSHI**

ERP Lead Consultant,  
Mphasis, Chennai

**Dr. R. PALSON KENNEDY**  
Principal

**Mr. B. MAGESH**  
Vice-Principal


Organizer:  
**Ms. K. VARALAKSHMI**  
HOD - CSE

ADMISSION CONTACT :

 **91505 94111 / 222**

 [www.peri.education](http://www.peri.education)  
admissions@peri.education

 PERI Knowledge Park, Mannivakkam, Chennai - 600048

  
**Dr. R. PALSON KENNEDY, M.E., Ph.D.**  
PRINCIPAL  
PERI INSTITUTE OF TECHNOLOGY  
Mannivakkam, Chennai - 600 048.



**PERI INSTITUTE OF TECHNOLOGY**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**CIRCULAR**

Ref: PERIIT/CSE/ 2022 EVEN/06

Date: 25/04/2022

The Department of Computer Science and Engineering is organizing a one day Guest Lecture on "ENTERPRISE RESOURCE PLANNING" on 25/04/2022 (Monday) from 02.00 pm.

I request all the faculty members and students to attend the Guest Lecture and we are expecting your coordination throughout the session.

  
**EVENT CO-ORDINATOR**

  
**HOD/CSE**

**HOD of Computer Science and Engineering**  
**PERI Institute of Technology**  
**Mannivakkam, Chennai - 600 048.**


**Copy to:**

THE PRINCIPAL

VICE PRINCIPAL

All HOD's

Students Group

  
**Dr. R. PALSON KENNEDY, M.E., Ph.D.,**  
**PRINCIPAL**  
**PERI INSTITUTE OF TECHNOLOGY**  
**Mannivakkam, Chennai - 600 048.**

**PERI INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**GUEST LECTURE ON “ROADMAP TO IT JOB”**

**Report**

A Guest Lecture on the topic “ENTERPRISE RESOURCE PLANNING” was organized by the Department of Computer Science and Engineering, on 25<sup>th</sup> April 2022 by 02.00pm to 03.00pm through a Google meet platform. **Mrs. J.ROSHAN SANTHOSHI, ERP Lead Consultant, Mphasis, Chennai** was the guest speaker of the day.

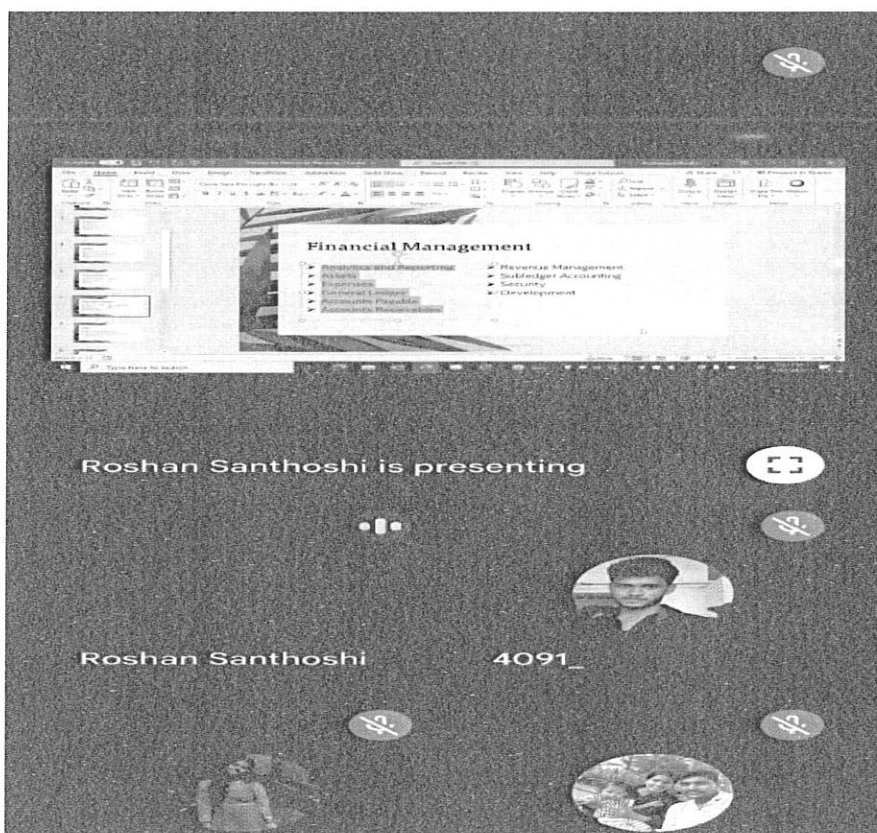
The poster is for a guest lecture at PERI Institute of Technology. At the top, it says 'PERI INSTITUTE OF TECHNOLOGY' and 'DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING ORGANIZES GUEST LECTURE ON "ENTERPRISE RESOURCE PLANNING"'. A date badge indicates '25 APR 2022 2:00 PM'. Below the text is an illustration of a business meeting with people around a table and large data screens. A circular portrait of Mrs. J. Roshan Santhoshi is shown next to her name and title: 'Resource Person: Mrs. J. ROSHAN SANTHOSHI, ERP Lead Consultant, Mphasis, Chennai'. At the bottom, it lists the organizers: Dr. R. PALSON KENNEDY (Principal), Mr. B. MAGESH (Vice-Principal), and Ms. K. VARALAKSHMI (HOJ - CSE). Contact information includes 'ADMISSION CONTACT: 91505 94111 / 222', the website 'www.peri.education', and the email 'admissions@peri.education'. The address is 'PERI Knowledge Park, Mannivakkam, Chennai - 600048'.

***Fig1: Speaker – J.ROSHAN SANTHOSHI***

The Guest Lecture began with a formal welcome note by Mr. Abdul Lathief, 2<sup>nd</sup> year CSE, presided by Mrs. Varalakshmi Krishnan HOD, CSE. The speaker, Mrs. J.Roshan Santhoshi accepted the invite.

Mrs Roshansanthoshi has delivered lecture on the topic “Enterprise resource planning “and its benefits. She explained about how the ERP systems collects and organizes the key business information and help organizations run lean, efficient operations, even as they expand.

She also explained about the application of integration frame work, ERP uses in various businesses, financial management. She shared about the popular ERP’s such as oracle, people soft, Tally etc and their uses on IT industry. She said that the ERP is a critical business software that collects information from various departments in a common database, enabling leaders to monitor the pulse of a company using a single vision of reality. She shared about her work experience in ERP human resource management mainly concerned on security.



**Fig2: Discussion Over Finance**

The resource person thanks the organizers for arranging the live Guest Lecture. Ms. Lavanya of 2<sup>nd</sup> year CSE has delivered the vote of thanks. She thanked the resource person, Management, Principal, Vice Principal, HOD, Faculty members, participants and other Officials for their active support for making the program to be successful.



**HOD**

HOD of Computer Science and Engineering  
PERI Institute of Technology  
Mannivakkam, Chennai - 600 048.

**PRINCIPAL**



**Dr. R. PALSON KENNEDY, M.E., Ph.D.,**

**PRINCIPAL**

**PERI INSTITUTE OF TECHNOLOGY  
Mannivakkam, Chennai - 600 048.**

**PERI INSTITUTE OF TECHNOLOGY**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**ATTENDANCE SHEET**  
**ENTERPRISE RESOURCE PLANNING**

BATCH: 2020-2024

CLASS: II CSE A

DATE: 25/04/22


S.NO	REG. NO.	NAME	SIGN
1	411520104001	AARTHY K P	Aarth K P
2	411520104002	AAYISHA K	Aayisha K
3	411520104003	ABDUL LATHIEF AH	Abdul Lathief
4	411520104004	ABIRAMI V	Abirami V
5	411520104005	AKASH D	Akash D
6	411520104006	AP SAR K	Apsana S
7	411520104007	APSHANA S	Apsana S
8	411520104008	ARAVINDHAN M	Aravindh M
9	411520104009	ARJUN PT	Arjun P T
10	411520104010	ARUN KISHORE E	Arun Kishore
11	411520104011	ARUNKUMAR EK	Arunkumar E K
12	411520104012	ARUN KUMAR G	Arun Kumar G
13	411520104013	ASHOKKUMAR M	Ashok Kumar M
14	411520104014	ASHWIN KUMAR PJ	Ashwin Kumar P J
15	411520104015	ASHWINTH KK	Ashwint K K
16	411520104016	ATCHAYA R	Atchaya R
17	411520104017	BRINDHA M	Brindha M
18	411520104018	CALEB J	Caleb J
19	411520104019	CHANDRAGUPTAN T	Chandraguptan T
20	411520104020	DHAMODHARAN SK	Dhamodharan S K
21	411520104021	DHANA SEHWAC R	Dhana Sehwar R
22	411520104022	DINAKARAN C	Dinakaran C
23	411520104023	DINESH D	Dinesh D
24	411520104024	DURGA V	Durga V
25	411520104025	GANESH B	Ganesh B
26	411520104026	GODDUMURI RAJU G	G. Raju G
27	411520104027	GOMATHI S	Gomathi S
28	411520104028	GOWTHAM M	Gowtham M
29	411520104029	GUNALAN M	Gunalan M
30	411520104030	HAREESH ANAND SR	Hareesh Anand S R
31	411520104031	HARINI K	Harini K
32	411520104032	HARISH SURIYA S	Harish Suriya S
33	411520104033	HEMACHANDRAN R	Hemachandran R
34	411520104034	IMMANUVEL B	Immanuel B
35	411520104035	JAYASHREE N	Jayashree N
36	411520104036	JAYASHREE V	Jayashree V
37	411520104037	JEEVANANTHAM D	Jeevanantham D
38	411520104038	KAMALESH B	Kamalesh B
39	411520104039	KARTHICK A	Karthick A
40	411520104040	KARTHICKSUBRAMANIYAN S	Karthick Subramaniyan S
41	411520104041	KARUPPIAH K	Karuppiah K
42	411520104042	KATHIRAVAN M	Kathiravan M
43	411520104043	KAVIDHARSHINI R	Kavidharshini R
44	411520104044	KAVIKUMAR K	Kavikumar K
45	411520104045	KAVIYA P	Kaviya P
46	411520104301	Hemanraj Nv	Hemanraj Nv
47	411520104302	Kalaivani S	Kalaivani S
48	411520104303	Lavanya M	Lavanya M
49	411520104304	Mary Sowmiya S	Mary Sowmiya S
50	411520104305	Mathavan M	Mathavan M

*Dr. R. Palson Kennedy*  
**Dr. R. PALSON KENNEDY, M.E., Ph.D.,**

**PRINCIPAL**

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**Mannivakkam, Chennai - 600 048.**

51	411520104306	Mohamed Nabeel N	OD
52	411520104307	Nandhini S	Nandhini S
53	411520104308	Pavithra V	Pavithra V
54	411520104309	Priyadharshini D	Priyadharshini D
55	411520104310	Pushparaj E	Pushparaj E
56	411520104311	Ramprasanna R	Ramprasanna R
57	411520104312	Samyukthaa Ad	Samyukthaa Ad
58	411520104313	Sandro Thisha R	OD
59	411520104314	Uma Maheswari D	OD
60	411520104315	Vignesh R	OD
61	411520104701	Jaydeep V	Jaydeep V
62	411520104702	Tanuj B	Tanuj B

  
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 Mannivakkam, Chennai - 600 043.

**PERI INSTITUTE OF TECHNOLOGY**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**ATTENDANCE SHEET**  
**ENTERPRISE RESOURCE PLANNING**

BATCH: 2020-2024


CLASS: II CSE B

DATE: 25/4/22

S.NO	REG. NO.	NAME	SIGN
1	411520104046	KERAKLIN W	Keraklin W
2	411520104047	KIRAN KUMAR M	Kiran Kumar M
3	411520104048	KIRUTHIKA G	Kiruthika G
4	411520104049	KOLLU BALAVARDHAN K	Kollu Balavardhan K
5	411520104050	KOUSHIKRAJU R R	Koushikraju R R
6	411520104051	KOWSIGAN R	Kowsigan R
7	411520104052	LAVANYA S	Lavanya S
8	411520104053	LOGESHWARI R	Logeshwari R
9	411520104054	MADESH C	Madesh C
10	411520104055	MANIKANDAN M	Manikandan M
11	411520104057	MANIKANDAN S	Manikandan S
12	411520104058	MARIKALA M	Marikala M
13	411520104059	MEGASRI K	Megasri K
14	411520104060	MEGHA VARSINI B	Megha Varsini B
15	411520104061	MOHAMED HARRIS H	Mohamed Harris H
16	411520104062	MOHAMED PAKIER RAHIM Y	Mohamed Pakier Rahim Y
17	411520104063	MONALISA V	Monalisa V
18	411520104064	MURALIKRISHNAN R S	Muralikrishnan R S
19	411520104065	MUTHAZHAGAN A	Muthazhagan A
20	411520104066	MUTHUPANDI P	Muthupandi P
21	411520104067	NALINI R	Nalini R
22	411520104068	NAVEEN KUMAR E	Naveen Kumar E
23	411520104069	NITHIN KARTHI R M	Nithin Karthi R M
24	411520104070	NITHYASREE P	Nithyasree P
25	411520104071	NIVETHA B	Nivetha B
26	411520104072	PRASANNAKUMARAN S	Prasannakumaran S
27	411520104073	PRAVEENKUMAR T	Praveenkumar T
28	411520104074	PRIYANGA D	Priyanga D
29	411520104075	RAGUL P	Ragul P
30	411520104076	RAGUNATH R	Ragunath R
31	411520104077	RAJASUBRAMANI R	Rajasubramani R
32	411520104078	RATTHIKA S	Ratthika S
33	411520104079	RAVISHANKAR G	Ravishankar G
34	411520104080	RITHICK R	Rithick R
35	411520104081	RUTHRESH P	Ruthresh P
36	411520104082	SAMUEL I	Samuel I
37	411520104083	SANJAANA S	Sanjaana S
38	411520104084	SANJAY R	Sanjay R
39	411520104085	SARANYA S	Saranya S
40	411520104086	SENTHURAMMAL S	Senthurammal S

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**Mannivakkam, Chennai - 600 048.**

41	411520104087	SHANKAR K	K. Shankar
42	411520104088	SHARAN G	B. Shy.
43	411520104089	SHIYAM SUNDHAR B	S. S.
44	411520104090	SIVAPRAKASH K	Shivaprakash
45	411520104091	SIVASABARISHWARI M	S. S.
46	411520104092	SNEHA PRIYA M	B. S.
47	411520104093	SOWMIYA B	R. S.
48	411520104094	SRIKANTH R	M. S.
49	411520104095	SUNILKUMAR N	S. S.
50	411520104096	SWETHA B	Swetha
51	411520104097	SWETHA SREE S	Tharun V
52	411520104098	THANUJA V	M. Tharun
53	411520104099	THARUN M	B. T. S.
54	411520104100	THRISHA B	J. Vandhana
55	411520104101	VANDHANA J	V. S.
56	411520104102	VARSHINI V	P. S.
57	411520104103	VELMURUGAN D	V. S.
58	411520104104	VENKATESH S	V. S.
59	411520104105	VIGNESH S	V. S.
60	411520104106	VIJAYA HARSHITHA V	V. S.
61	411520104107	VIJAYAKUMAR D	B. S.
62	411520104108	VISHNU B	B. S.
63	411520104109	VISHVA B	B. S.

  
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PERI INSTITUTE OF TECHNOLOGY  
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING  
ATTENDANCE SHEET  
ENTERPRISE RESOURCE PLANNING

BATCH: 2019-2023

CLASS: III CSE A

DATE: 25/04/22

SNO	REGNO	NAME	SIGN
1	411519104001	AKASH	G. Akash
2	411519104002	ALTHAF KHAN	Althaf
3	411519104003	ANSUL JAFERA	Ansul J
4	411519104004	ARUL MANI	Arul Mani
5	411519104005	AUGUSTIN RAJA	Augustin Raja
6	411519104006	AYESHA MUNAWAR	Ayesha Munawar
7	411519104007	BABY SWETHA	P. Baby Swetha
8	411519104010	BLESSY EVANGLIN	L. Blessy Evangelin
9	411519104011	CHITRA	C. Chitra
10	411519104012	DAYANA	Dayana
11	411519104013	DEEPAK KUMAR BHAGAT	Deepak Kumar Bhagat
12	411519104014	DHANESH KUMAR	Dhanesh Kumar
13	411519104016	DINESH KUMAR	N. Dinesh Kumar
14	411519104017	DIVYA	G. Divya
15	411519104018	GABRIEL NIXSON JONES	J. Gabriel
16	411519104019	GOKUL	Gokul
17	411519104020	GOPINATH	Gopinath V.
18	411519104021	GOWNORI JASMITHA	G. Gownori Jasmitha
19	411519104022	HARIHARAN	Hariharan
20	411519104023	HARIHARAN	Hariharan
21	411519104024	HARIHARAN	Hariharan
22	411519104026	HARSHINI	Harshini
23	411519104027	HEMAVATHY	Hemavathy K.
24	411519104028	JAGATHEESAN	Jagatheesan
25	411519104029	JASMINE JENIFER MARY	X. Jasmine Jenifer Mary
26	411519104031	KABIL	Kabil
27	411519104032	KALAIVANI	K. Kalavani
28	411519104033	KALIGIRI PAVAN	K. Kaligiri Pavan
29	411519104034	KARTHICK	Karthick
30	411519104035	KEERTHANA	V. Keerthana
31	411519104036	KISHORE	Kishore
32	411519104037	KISHORE	Kishore
33	411519104038	KUMARAVEL	Kumaravel
34	411519104039	LAKSHMI PRIYA	Lakshmi Priya S.
35	411519104041	LOGESWARAN	L. Logeswaran
36	411519104042	M MALAVIKA	M. Malavika
37	411519104043	A MANASA	A. Manasa
38	411519104044	B MANI BHARATHI	B. Mani Bharathi
39	411519104045	MANIKANDAN	V. Manikandan
40	411519104046	MAREESWARI	M. Mareeswari
41	411519104047	MEDEPALLI YADIDYA	M. Medepalli Yadidya

*(Signature)*  
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MADHAVURAM, Chennai - 600 049.

42	411519104048	MOHAMMED HAMEED	<i>[Signature]</i>
43	411519104049	MUKESH	<i>S. Mukesh</i>
44	411519104050	M MUTHUKUMAR	<i>M. Muthu</i>
45	411519104053	NANDHINI	<i>J. Nandhini</i>
46	411519104054	NAVEEN	<i>Naveen</i>
47	411519104060	BEN JOESPH	<i>Ben Joseph</i>
48	411519104093	SWETHA	<i>Swetha</i>
49	411519104302	BALAJI	<i>Balaji</i>

*[Signature]*  
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**Mannivakkam, Chennai - 600 043.**

PERI INSTITUTE OF TECHNOLOGY  
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING  
ATTENDANCE SHEET  
ENTERPRISE RESOURCE PLANNING

BATCH: 2019-2023

CLASS: III CSE B

DATE: 25/04/22

SNO	REGNO	NAME	SIGN
1	411519104040	LINGAREDDY SAIDHATHRI	[Signature]
2	411519104051	NALLAPANENI VAMSI KRISHNA	[Signature]
3	411519104052	NAMBURI SRINADH	[Signature]
4	411519104055	NAVEEN KUMAR D	[Signature]
5	411519104056	NAVEEN KUMAR M	[Signature]
6	411519104057	NEDUNSERALADHAN	[Signature]
7	411519104058	NISHANTHI A	[Signature]
8	411519104059	NITHISH KUMAR	[Signature]
9	411519104061	PARTHIBAN D	[Signature]
10	411519104062	PAVITHRA M	[Signature]
11	411519104063	POLI SUNIL	[Signature]
12	411519104064	PONDURI SRI SUSHMA	[Signature]
13	411519104065	POOJA M	[Signature]
14	411519104066	PRADEEP T R	[Signature]
15	411519104067	PRAKASH R	[Signature]
16	411519104068	PRAVEEN KUMAR S	[Signature]
17	411519104069	PRAVEEN KUMAR G	[Signature]
18	411519104070	PRIYA DHARSHAN.V	[Signature]
19	411519104071	PRIYADHARSHINI.M	[Signature]
20	411519104072	RAGHAVA R	[Signature]
21	411519104073	RAJA MURALI	[Signature]
22	411519104074	REVATHI S	[Signature]
23	411519104075	RISHI ASHOK	[Signature]
24	411519104076	RISHYA SIRUNGANAN G	[Signature]
25	411519104077	ROSHNI M	[Signature]
26	411519104078	ROY REUBAN RAJE	[Signature]
27	411519104079	SAI CHARAN.G	[Signature]
28	411519104080	SANJAY	[Signature]
29	411519104081	SANTHOSH KUMAR	[Signature]
30	411519104082	SAVITHA B	[Signature]
31	411519104083	SHANMUGA RAJ	[Signature]
32	411519104084	SILAMBARASAN K	[Signature]
33	411519104085	SIVANANDHAN	[Signature]
34	411519104086	SNEHA M	[Signature]
35	411519104087	SOWMIYA C	[Signature]
36	411519104088	SUGASHINI M	[Signature]
37	411519104089	SUNIL S	[Signature]
38	411519104091	SURESH MANIKANDAN	[Signature]
39	411519104092	SURYA V	[Signature]
40	411519104094	TAMIL SELVAN V	[Signature]
41	411519104095	THARANIDARAN P	[Signature]
42	411519104097	VETRI CHELVAN .S	[Signature]
43	411519104098	VIGNESHWARAN	[Signature]
44	411519104099	VIKRAM R J	[Signature]
45	411519104100	VISHWA	[Signature]
46	411519104101	YOKESH S	[Signature]
47	411519104102	YUVA SHREE R	[Signature]
48	Lateral entry	STEVEN SIRAN	[Signature]

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PERI INSTITUTE OF TECHNOLOGY  
DEPARTMENT OF CSE  
FEEDBACK FORM

Name and Reg No of the Participant	: Tharuja .v
Dept/ Year/ Sec	: CSE
Name of the Event	: Use tick mark <input type="checkbox"/> Workshop <input checked="" type="checkbox"/> Seminar <input type="checkbox"/> Training
Student Phone Number	: 866 766 0921

Your feedback is valuable to ensure we are meeting your educational needs. We would appreciate if you could take a few minutes to share your opinions with us so we can serve you better.

Title of the Event	: Enterprise resource planning
Date	: 25.4.22
Name of the Instructor/Organization	: Mphasis, Chennai

Please respond to the following statements by using the 4-point rating scale to indicate the extent to which you agree or disagree with each statement. Please circle the number that applies.

S. No	Evaluation Statements	Strongly Agree	Agree	Disagree	Strongly Disagree
1.	The program content met with your expectations.	(4)	3	2	1
2.	The program exposed to you to new knowledge and practices.	4	(3)	2	1
3.	The teaching aids were effectively used	4	(3)	2	1
4.	The content were illustrated with adequate real time examples.	(4)	3	2	1
5.	The facilitators were knowledgeable and well prepared.	(4)	3	2	1
6.	The facilitators were responsive to participants questions.	4	(3)	2	1
7.	The program was well organized and well-coordinated.	(4)	3	2	1
8.	Would you recommended this seminar/workshop/conference to other conservators?	(Yes)		No	
9.	Would you be interested in attending a follow up seminar/workshop/conference on the same subject?	(Yes)		No	
10.	Suggestion if any,	-			

*Tharuja*  
Signature

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Mannivakkam, Chennai - 600 048.

PERI INSTITUTE OF TECHNOLOGY  
DEPARTMENT OF CSE  
FEEDBACK FORM

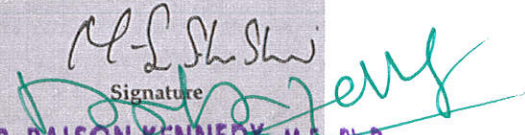
Name and Reg No of the Participant	: <u>Mr. Siva Sabarishwari</u>	<u>411520104091</u>	
Dept/Year/Sec	<u>CSE</u>	<u>"</u>	<u>B</u>
Name of the Event	Use tick mark <input type="checkbox"/> Workshop <input checked="" type="checkbox"/> Seminar <input type="checkbox"/> Training		
Student Phone Number	<u>8754115806</u>		

Your feedback is valuable to ensure we are meeting your educational needs. We would appreciate if you could take a few minutes to share your opinions with us so we can serve you better.

Title of the Event	: <u>Enterprise Resource Planning.</u>
Date	: <u>25.4.22</u>
Name of the Instructor/Organization	: <u>Mphasis, Chennai</u>

Please respond to the following statements by using the 4-point rating scale to indicate the extent to which you agree or disagree with each statement. Please circle the number that applies.

S. No	Evaluation Statements	Strongly Agree	Agree	Disagree	Strongly Disagree
1.	The program content met with your expectations.	(4)	3	2	1
2.	The program exposed to you to new knowledge and practices.	(4)	3	2	1
3.	The teaching aids were effectively used	4	(3)	2	1
4.	The content were illustrated with adequate real time examples.	(4)	3	2	1
5.	The facilitators were knowledgeable and well prepared.	(4)	3	2	1
6.	The facilitators were responsive to participants questions.	(4)	3	2	1
7.	The program was well organized and well-coordinated.	(4)	3	2	1
8.	Would you recommended this seminar/workshop/conference to other conservators?	Yes		No	
9.	Would you be interested in attending a follow up seminar/workshop/conference on the same subject?	Yes		No	
10.	Suggestion if any,				

  
 Signature  
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Mannivakkam, Chennai - 600 048.

PERI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF CSE

FEEDBACK FORM

Name and Reg No of the Participant	:	Vandhana . J	411520104101
Dept / Year / Sec	:	CSE	II B
Name of the Event	:	Use tick mark <input type="checkbox"/> Workshop <input checked="" type="checkbox"/> Seminar <input type="checkbox"/> Training	
Student Phone Number	:	9345754696	

Your feedback is valuable to ensure we are meeting your educational needs. We would appreciate if you could take a few minutes to share your opinions with us so we can serve you better.

Title of the Event	:	Enterprise Resource Planning
Date	:	25.04.2022
Name of the Instructor/Organization	:	Mphasis o Chennai

Please respond to the following statements by using the 4-point rating scale to indicate the extent to which you agree or disagree with each statement. Please circle the number that applies.

S. No	Evaluation Statements	Strongly Agree	Agree	Disagree	Strongly Disagree
1.	The program content met with your expectations.	(4)	3	2	1
2.	The program exposed to you to new knowledge and practices.	(4)	3	2	1
3.	The teaching aids were effectively used	(4)	3	2	1
4.	The content were illustrated with adequate real time examples.	(4)	3	2	1
5.	The facilitators were knowledgeable and well prepared.	4	(3)	2	1
6.	The facilitators were responsive to participants questions.	4	(3)	2	1
7.	The program was well organized and well-coordinated.	(4)	3	2	1
8.	Would you recommended this seminar/workshop/conference to other conservators?	(Yes)		No	
9.	Would you be interested in attending a follow up seminar/workshop/conference on the same subject?	(Yes)		No	
10.	Suggestion if any,	- Nil -		- Nil -	

*J. Vandhana*  
Signature  
Dr. R. PALSON KENNEDY, M.E., Ph.D.,

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Mannivakkam, Chennai - 600 048.

PERI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF CSE

FEEDBACK FORM

Name and Reg No of the Participant	: Lavanya S	411520104052
Dept/Year/Sec	CSE	11 B
Name of the Event	Use tick mark <input type="checkbox"/> Workshop <input checked="" type="checkbox"/> Seminar <input type="checkbox"/> Training	
Student Phone Number	6383221970	

Your feedback is valuable to ensure we are meeting your educational needs. We would appreciate if you could take a few minutes to share your opinions with us so we can serve you better.

Title of the Event	: Enterprise resource planning
Date	: 25-04-2022
Name of the Instructor/Organization	: Mphasis, Chennai

Please respond to the following statements by using the 4-point rating scale to indicate the extent to which you agree or disagree with each statement. Please circle the number that applies.

S. No	Evaluation Statements	Strongly Agree	Agree	Disagree	Strongly Disagree
1.	The program content met with your expectations.	(4)	3	2	1
2.	The program exposed to you to new knowledge and practices.	4	(3)	2	1
3.	The teaching aids were effectively used	(4)	3	2	1
4.	The content were illustrated with adequate real time examples.	4	(3)	2	1
5.	The facilitators were knowledgeable and well prepared.	4	(3)	2	1
6.	The facilitators were responsive to participants questions.	(4)	3	2	1
7.	The program was well organized and well-coordinated.	(4)	3	2	1
8.	Would you recommended this seminar/workshop/conference to other conservators?	(Yes)			No
9.	Would you be interested in attending a follow up seminar/workshop/conference on the same subject?	(Yes)			No
10.	Suggestion if any,	Nothing			

Signature

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Mannivakkam, Chennai - 600 048.

PERI INSTITUTE OF TECHNOLOGY  
DEPARTMENT OF CSE  
FEEDBACK FORM

Name and Reg No of the Participant	Smetha B	411520109096
Dept/Year/Sec	CSE	II B
Name of the Event	Use tick mark <input type="checkbox"/> Workshop <input type="checkbox"/> Seminar <input type="checkbox"/> Training	
Student Phone Number	8610527187	


Your feedback is valuable to ensure we are meeting your educational needs. We would appreciate if you could take a few minutes to share your opinions with us so we can serve you better.

Title of the Event	Enterprise resource planning
Date	25.4.22
Name of the Instructor/Organization	M phasis, chennai

Please respond to the following statements by using the 4-point rating scale to indicate the extent to which you agree or disagree with each statement. Please circle the number that applies.

S. No	Evaluation Statements	Strongly Agree	Agree	Disagree	Strongly Disagree
1.	The program content met with your expectations.	4	(3)	2	1
2.	The program exposed to you to new knowledge and practices.	(4)	3	2	1
3.	The teaching aids were effectively used	(4)	3	2	1
4.	The content were illustrated with adequate real time examples.	(4)	3	2	1
5.	The facilitators were knowledgeable and well prepared.	4	(3)	2	1
6.	The facilitators were responsive to participants questions.	(4)	3	2	1
7.	The program was well organized and well-coordinated.	4	(3)	2	1
8.	Would you recommended this seminar/workshop/conference to other conservators?	Yes		No	
9.	Would you be interested in attending a follow up seminar/workshop/conference on the same subject?	Yes		No	
10.	Suggestion if any,	Ntg			

  
Signature

  
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 Mannivakkam, Chennai - 600 048.



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ORGANIZES

**A GUEST LECTURE ON  
ENTERPRISE RESOURCE PLANNING**

**CERTIFICATE OF PARTICIPATION**

THIS IS TO CERTIFY THAT MR./MS./DR. Gabriel Nixon Jones.J OF \_\_\_\_\_

**PERI INSTITUTE OF TECHNOLOGY** \_\_\_\_\_ HAS PARTICIPATED IN GUEST LECTURE ON "ENTERPRISE

RESOURCE PLANNING" ORGANISED PERI INSTITUTE OF TECHNOLOGY ON 25/04/2022.



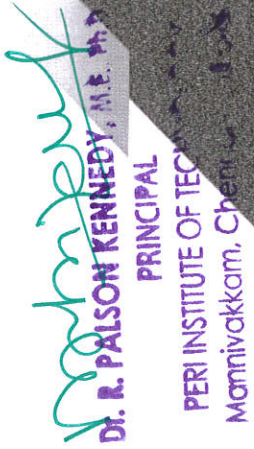
*[Signature]*

**VICE PRINCIPAL**



*[Signature]*

**PRINCIPAL**



*[Signature]*  
**DR. R. PALSON KENNEDY, M.E., Ph.D.**  
PRINCIPAL  
PERI INSTITUTE OF TECHNOLOGY  
Mannivakkam, Chennai - 600048

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ORGANIZES

**A GUEST LECTURE ON  
ENTERPRISE RESOURCE PLANNING**

**CERTIFICATE OF PARTICIPATION**

THIS IS TO CERTIFY THAT MR./MS./DR. CALEB J OF \_\_\_\_\_

**PERI INSTITUTE OF TECHNOLOGY** \_\_\_\_\_ HAS PARTICIPATED IN GUEST LECTURE ON "ENTERPRISE

RESOURCE PLANNING" ORGANISED PERI INSTITUTE OF TECHNOLOGY ON 25/04/2022.



**VICE PRINCIPAL**



**PRINCIPAL**



**DR. R. PALSON KENNEDY, M.E.**

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**A GUEST LECTURE ON  
ENTERPRISE RESOURCE PLANNING**

**CERTIFICATE OF PARTICIPATION**

THIS IS TO CERTIFY THAT MR./MS./DR. Tharanidharan.P OF \_\_\_\_\_

**PERI INSTITUTE OF TECHNOLOGY** \_\_\_\_\_ HAS PARTICIPATED IN GUEST LECTURE ON "ENTERPRISE

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*[Signature]*

**VICE PRINCIPAL**



*[Signature]*

**PRINCIPAL**

*[Signature]*  
**DR. R. PALSON KENNEDY, M.E., Ph.D.**  
PRINCIPAL  
PERI INSTITUTE OF TECHNOLOGY  
Mannivakkam, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**A GUEST LECTURE ON  
ENTERPRISE RESOURCE PLANNING**

**CERTIFICATE OF PARTICIPATION**

THIS IS TO CERTIFY THAT MR./MS./DR. Nithin Karthi R M OF \_\_\_\_\_

**PERI INSTITUTE OF TECHNOLOGY** HAS PARTICIPATED IN GUEST LECTURE ON "ENTERPRISE

RESOURCE PLANNING" ORGANISED PERI INSTITUTE OF TECHNOLOGY ON 25/04/2022.



**VICE PRINCIPAL**



**PRINCIPAL**



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