



Controller General of Patents, Designs and Trademarks
Department of Industrial Policy and Promotion
Ministry of Commerce and Industry

Application Details

APPLICATION NUMBER	202041023885
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	08/06/2020
APPLICANT NAME	1 . Dr Senduru Srinivasulu 2 . Ms Ramya G Franklin 3 . Ms.J.S.Vimali 4 . Dr S Gowri 5 . Dr J Jabez 6 . Dr S Murugan 7 . Dr V Ulagamuthalvi 8 . Dr B Muthu Kumar
TITLE OF INVENTION	TYPE - 2 DIABETES DETECTION AND ESTIMATION FROM GLUCOSE LEVELS BY FEATURE DETECTION USING MACHINE LEARNING ALGORITHM
FIELD OF INVENTION	COMMUNICATION



Australian Government

IP Australia

CERTIFICATE OF GRANT INNOVATION PATENT

Patent number: 2021100009

The Commissioner of Patents has granted the above patent on 24 March 2021, and certifies that the below particulars have been registered in the Register of Patents.

Name and address of patentee(s):

Dhanalakshmi R of Professor, Dept. of CSE, KCG College of Technology, Karapakkam Tamilnadu 600097 India

Praveen Joe I R of Associate Professor, CSE, KCG College of Technology Chennai Tamilnadu 600016 India

Thenmozhi M of Associate Professor, Dept. of IT, SRM Institute of Science and Technology Chennai Tamilnadu 603203 India

Judgi T of Associate professor, Department of CSE, Sathyabama Institute of Science and Tech Chennai Tamilnadu 600119 India

Dhaya C of Professor, Dept of CSE, Adhiparasakthi Engineering College Melmaruvathur Tamilnadu 603319 India

Prakash B of Assistant professor, Dept of IT, Sri Venkateswara College of Engineering, Pennalur Sriperumbudur Tamilnadu 602117 India

Niranjana G of Associate Professor, Department of CSE, SRM Institute of Science and Technology Chennai Tamilnadu 603203 India

Punitha A of Professor, Dept of CSE, Chettinad College of Engineering & Tech Karur Tamilnadu 639114 India

Title of invention:

Profile Based Digitization of Medical Records in Cloud

Name of inventor(s):

R, Dhanalakshmi; I R, Praveen Joe; M, Thenmozhi; T, Judgi; C, Dhaya; B, Prakash; G, Niranjana and A, Punitha

Term of Patent:

Eight years from 2 January 2021

NOTE: This Innovation Patent cannot be enforced unless and until it has been examined by the Commissioner of Patents and a Certificate of Examination has been issued. See sections 120(1A) and 129A of the Patents Act 1990, set out on the reverse of this document.



Dated this 24th day of March 2021

Commissioner of Patents

PATENTS ACT 1990

The Australian Patents Register is the official record and should be referred to for the full details pertaining to this IP Right.

Sect 120(1A) Infringement proceedings in respect of an innovation patent cannot be started unless the patent has been certified.

- (1) Where a person, by means of circulars, advertisements or otherwise, threatens a person with infringement proceedings or other similar proceedings a person aggrieved may apply to a prescribed court, or to another court having jurisdiction to hear and determine the application, for:
 - (a) a declaration that the threats are unjustifiable; and
 - (b) an injunction against the continuance of the threats; and
 - (c) the recovery of any damages sustained by the applicant as a result of the threats.
- (2) Subsection (1) applies whether or not the person who made the threats is entitled to, or interested in, the patent or a patent application.

Certain threats of infringement proceedings are always unjustifiable.

- (1) If:
- (a) a person:
 - (i) has applied for an innovation patent, but the application has not been determined; or
 - (ii) has an innovation patent that has not been certified; and
 - (b) the person, by means of circulars, advertisements or otherwise, threatens a person with infringement proceedings or other similar proceedings in respect of the patent applied for, or the patent, as the case may be;
- then, for the purposes of an application for relief under section 128 by the person threatened, the threats are unjustifiable.

(2) If an application under section 128 for relief relates to threats made in respect of an innovation patent that has not been certified or an application for an innovation patent, the court may grant the application the relief applied for.

(3) If an application under section 128 for relief relates to threats made in respect of a certified innovation patent, the court may grant the applicant the relief applied for unless the respondent satisfies the court that the acts about which the threats were made infringed, or would infringe, a claim that is not shown by the applicant to be invalid.

certified, in respect of an innovation patent other than in section 19, means a certificate of examination issued by the Commissioner under paragraph 101E(e) in respect of the patent



ORIGINAL

No. 90603

भारत सरकार
GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE

CERTIFICATE OF REGISTRATION OF DESIGN

Design No. 331427-001
Date 28/07/2020
Reciprocity Date*
Country

Certified that the design of which a copy is annexed hereto has been registered as of the number and date given above in class 10-04 in respect of the application of such design to KIOSK WITH SEATER AND AUTOMATIC HEIGHT ADJUSTING THERMAL SCREENER in the name of 1.DR. G. NAGARAJAN, PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING SCHOOL OF COMPUTING SATHYABAMA INSTITUTE OF SCIENCE & TECHNOLOGY CHENNAI - 600 119, TAMILNADU, INDIA 2. DR. T. PREM JACOB, ASSOCIATE PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING SATHYABAMA INSTITUTE OF SCIENCE & TECHNOLOGY CHENNAI - 600 119, TAMILNADU, INDIA 3. DR. A. PRAVIN, ASSOCIATE PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING SCHOOL OF COMPUTING SATHYABAMA INSTITUTE OF SCIENCE & TECHNOLOGY CHENNAI - 600 119, TAMILNADU, INDIA

in pursuance of and subject to the provisions of the Designs Act, 2000 and the Designs Rules, 2001.

Controller General of Patents, Designs and Trade Marks

*The reciprocity date (if any) which has been allowed and the name of the country.

Copyright in the design will subsist for ten years from the date of Registration, and may under the terms of the Act and Rules, be extended for a further period of five years.

This Certificate is not for use in legal proceedings or for obtaining registration abroad

DR. G. NAGARAJAN,
PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE
AND ENGINEERING SCHOOL OF COMPUTING
SATHYABAMA INSTITUTE OF SCIENCE &
TECHNOLOGY CHENNAI - 600 119, TAMILNADU, INDIA

Date of Issue 26/08/2020 12:30:35



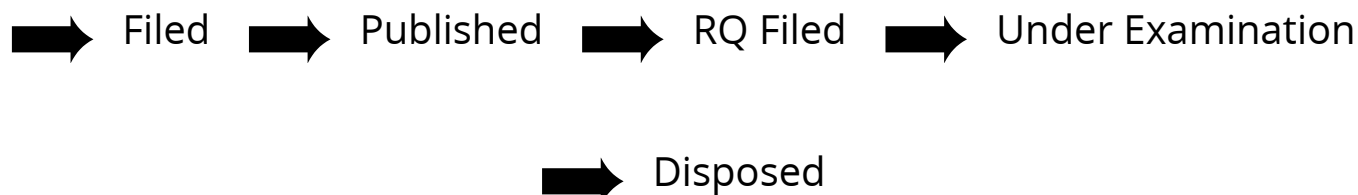
Controller General of Patents, Designs and Trademarks
Department of Industrial Policy and Promotion
Ministry of Commerce and Industry

Application Details

APPLICATION NUMBER	202141003335
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	25/01/2021
APPLICANT NAME	Dr.A.CHRISTY
TITLE OF INVENTION	COMPLETION OF CHEMICAL REACTION IN REMOTE LOCATIONS USING DATA ANALYTICS BUILT ON INTERNET OF THINGS PLATFORM
FIELD OF INVENTION	COMMUNICATION
E-MAIL (As Per Record)	
ADDITIONAL-EMAIL (As Per Record)	
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	05/02/2021

Application Status

APPLICATION STATUS	Awaiting Request for Examination
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[View Documents](#)

ABSTRACT

“COMPLETION OF CHEMICAL REACTION IN REMOTE LOCATIONS USING DATA ANALYTICS BUILT ON INTERNET OF THINGS PLATFORM”

In today's world Chemical industries and biochemical plants deal with hazardous chemical reactions. The progression of the reaction / completion of the reaction are done by observation of different parameters as well as aliquoting different samples for analysis. This normal procedure is tedious, time consuming and cumbersome. A novel method has been developed to accurately estimate the end point of chemical reaction in remote locations using Internet of Things (IoT) platform. The procedure involves monitoring different parameters like changes in pressure, volume and analyzing the data to find accurately the end point of locations using IOT and Machine learning techniques. A simple reaction involving oxidation of oxalic acid with incremental addition of potassium permanganate in nitric acid medium was carried out in lab scale under vacuum and the drop in vacuum was observed with time and volume. The end point of the reaction was accurately estimated by observing the pressure values using a pressure sensor and passing it to the cloud through the Wi-Fi module. Data is analyzed using machine learning techniques and once the curve flattens means the end point is reached. The data sends an alert to the IoT device that the reaction is completed as well as the circuit is automatically stopped in further functioning.

"COMPLETION OF CHEMICAL REACTION IN REMOTE LOCATIONS USING DATA ANALYTICS BUILT ON INTERNET OF THINGS PLATFORM"

FIELD OF THE INVENTION

The present invention relates generally to Chemical reaction and Internet of Things.

BACKGROUND OF THE INVENTION

According to Carsten Maple (2017) around 50 billion devices will get connected with internet by 2020. IoT is mainly used in three different application domains such as industry, environment, and society. According to Industry 4.0, IoT can be incorporated into every phase of manufacturing.

Gurpur Rakesh D. Prabhu et al (2019) has adopted IOT to operate the equipment of the laboratory located in remote locations. Particle Photon WI-FI module is applied for the monitoring of long-term chemical reaction. Data acquisition is done with IOT devices, stored in cloud and analysis is further performed which in turn performs data analysis and intimate the condition to the user in terms of abnormal situation.

João B. A. Gomes et al (2019) has adopted IOT platform for detecting gas detection and measurement. Gas sensing is a major factor in activities such as medicine, sports, industrial applications and environmental monitoring and pollution control. Gas sensors rely on chemical reaction when it is trying to generate a response proportional to the gas's concentration.

Metal Oxide semi-conductor gas sensors are used to grant the right mixture of O₂ and N₂ to avoid toxic gas leakage. Michael Mayer and Antje Baeumner (2019) embedded components and sensors adopts decision-making in order to bring to a solution. The IT revolution and data transmission via smart phones could pave a way to connect remote sensors and distributed analytical chemical services, by storing data over the cloud.

To avoid unnecessary power consumption in smart homes Mingfu Li and Hung-Ju Lin (2013) has proposed wireless sensor networks and power line communications. Along with these devices, a smart control algorithm is also used to measure the depletion of power.

Quan Yang et al (2009) have used PR Equation of state to find critical end points. Yang Han et al (2019) have used optical information for identifying end points in the steel manufacturing process.

Raees Khan and Adnan Noor Mian (2020) have incorporated the integration of abstraction layer with efficient web framework for improving the security of IoT based cloud applications. Application layer frameworks such as IoTivity, CoAP, REST are used for improving the security of IoT based applications.

The REST architecture has certain drawbacks in transferring data to the cloud. IoT applications suffer network congestion resulting with security and privacy issues. Some of the features included in the existing chemical sensors include selectivity, sensitivity, limit of detection, response time and packaging size.

SUMMARY OF THE INVENTION

IoT is expected create major contributions across all domains ranging from home, healthcare, agriculture, business industry applications, etc which can improve the economy as well as lifestyle of the people.

The existence of Sensors with Big data, massive machine learning algorithms and the technology enabled cloud computing, fog computing and edge computing has made the system work "SMART". Sensor data can be used to lower energy costs, pollution, improve services, traffic, safety, etc. Applying and monitoring of IoT enabled services remains a security challenge.

Various chemical reactions are involved in a chemical plant. To ensure the completion of a reaction, samples are periodically taken for analysis. This procedure, which is generally followed is tedious and cumbersome.

A novel method was evolved to find accurately the completion of reaction by analyzing the data of with various parameters, specifically with pressure. The data transaction between sensors should be reduced by adopting suitable approach.

BRIEF DESCRIPTION OF THE INVENTION

IoT can be recognized as an aggregation of various elements such as Identification of the objects, Sensing, Communication with technologies, Computation, Services and Semantics.

Identification of IoT objects is vital as it is given a unique code. For example, Object ID is referred with an index "BMP" to represent pressure sensor and object address indicates the address of the object within the specified communication network [14][15][16]. IOT sensing deals with gathering data from with the object and sending it through cloud or fog.

The collected data is then analyzed using data analytics methods. IoT sensors specific to a task, smart sensors, bio sensors, embedded sensors or wearable sensors are used to monitor and control various devices and appliances in various domains[5][9][10].

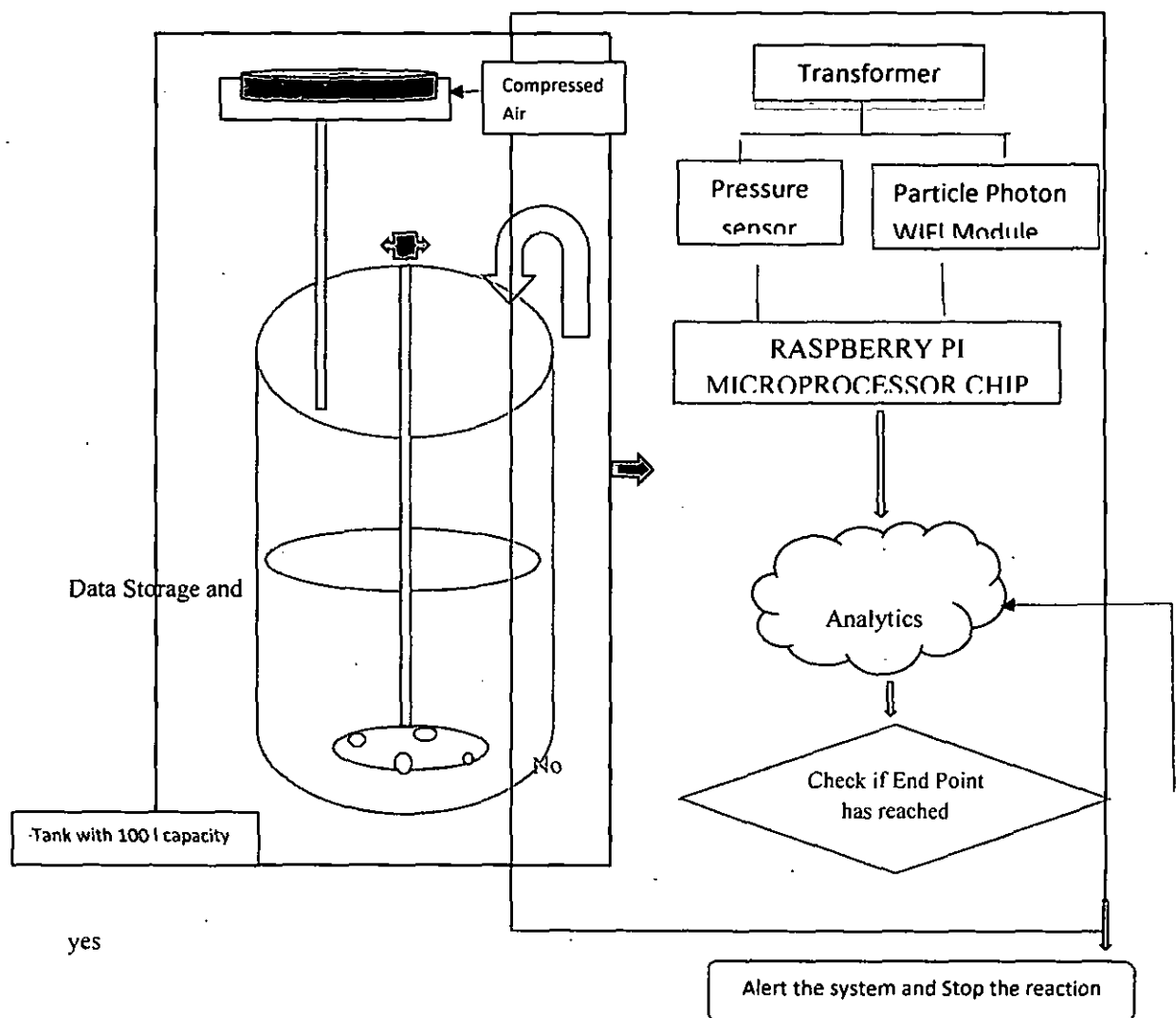


Fig.1: System Architecture : Monitoring IOT based chemical reaction.

Communication between various IoT devices are performed with technologies such as RFID, NFC, UWB, Bluetooth, WiFi, IEEE 802.15.4, LTE-A, Bluetooth, Z-Wave, WiFiDirectetc.

The most used WiFi uses radio waves to exchange coverage of data up to a range of 100m [3][13]. Computation is done with hardware devices such as SmartThings, Arduino, Raspberry Pi, Smart Phones and Software components such as TinyOS, Android, Contiki, LiteOS, RIoTOS, etc.

Data processing from remote locations can be carried out through cloud, fog and edge computing. The transferred big data can be transferred on real time basis and analysis can be done through data analytics tools[17][18].

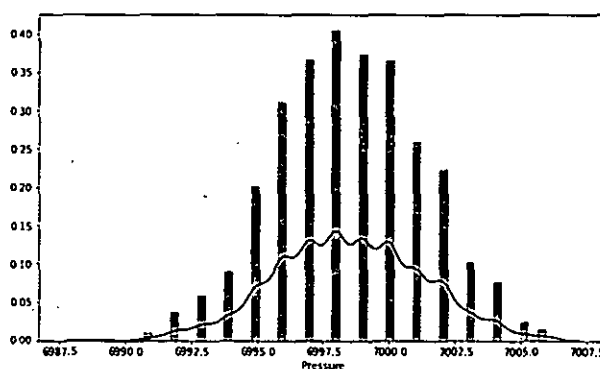


Fig. 2 : Observed pressure.

The operations of a chemical industry happen in remote locations and monitoring the chemical reactions remains a challenge and in most cases it is decided based on the pressure released by measuring the pressure with a pressure gauge.

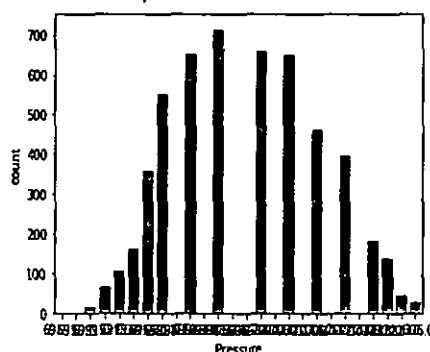


Fig.3: Count plot of pressure.

Automation of chemical reactions and monitoring their end points can be done with the help of capturing the data with a help of an IOT device. The IOT device consists of Raspberry Pi Microcontroller Chip, which is required to monitor all the proceedings in the sensors .

- **Transformer:** A Transformer is being used in our framework to supply power to all the sensors and Microcontroller chip to power them for operations. To prove suitable for our operations, a step-down transformer is being used in our proposed model to reduce the supplied voltage from 230V to 0-9V supply.
- **Particle Photon Wi-Fi module** is used for sensing long distance objects.
- **Pressure Sensor** which senses pressure and converts it into an electric signal.
- A **Wi-Fi module** is used to transmit data to the cloud in real time basis, data are analyzed continuously and when the end point is reached an alert is send to stop the reaction and the process is terminated automatically. The overall architecture is depicted in Fig. 1.

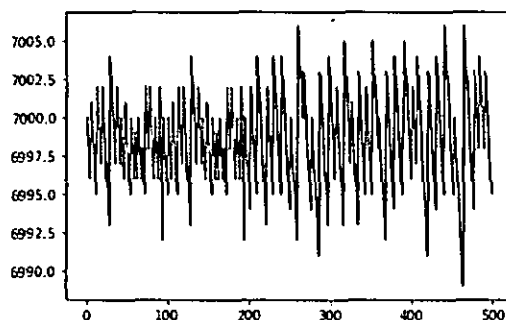


Fig. 4 : Line plot depicting pressure changes.

DETAILED DESCRIPTION OF THE INVENTION

The attempt of sensing the end point of a chemical reaction become necessary to avoid the occurrence of explosions in chemical industry. The reaction of oxalic acid with potassium permanganate was taken in a reduced pressure (negative pressure) and change in pressure with addition of oxalic acid was observed and the end point was found out by analyzing the data using Machine learning techniques. This method can be applied in chemical plant functioning in remote locations.

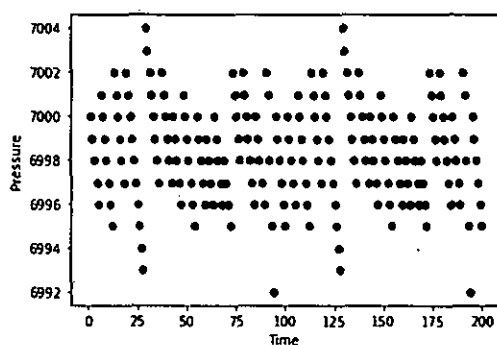


Fig.5 : Scatter plot of time with pressure.

For experimentation, tank of capacity 100 litre was used. Vacuum was generated with the help of an air ejector. Potassium permanganate was added through a pump at constant rate of 30 l/ hour with proper mixing.

The change in negative pressure of the tank was observed with periodically (every 30 secs). With the addition of potassium permanganate, CO₂ is evolved in the reach and it will quench the negative pressure in the tank and the negative pressure will come down.

Near the completion of the reaction, the negative pressure will stabilize and with the completion of the reaction, the negative pressure inside the tank will rise, since the evolution of CO₂ will gets stopped. The sudden increase of pressure is recognized as the end point.

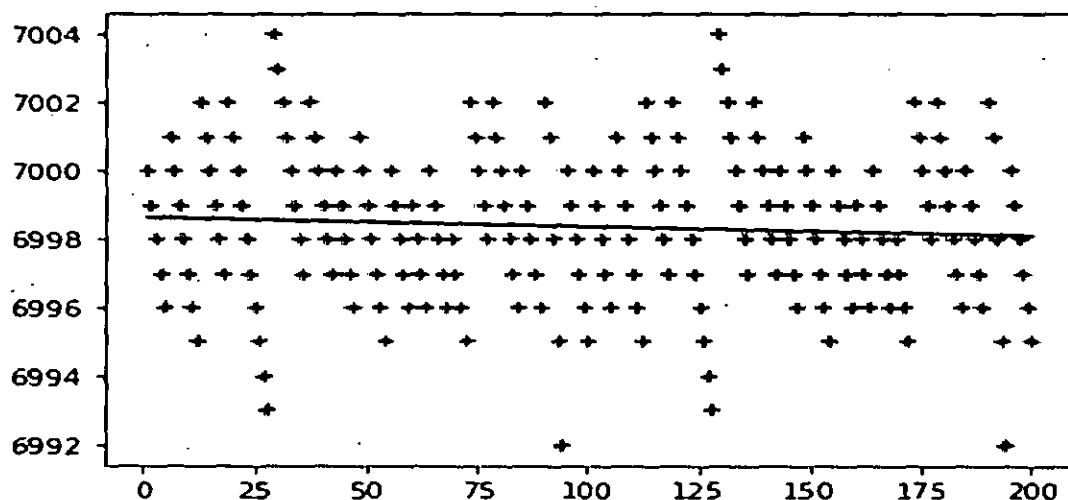
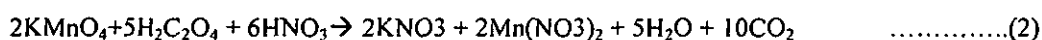
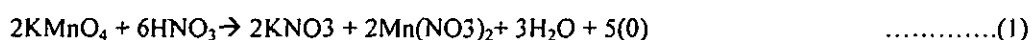


Fig. 6 : Linear regression.

Since the chemical plants are located at remote locations, when the reaction is nearing completion, the increase in pressure need to be noted and if not found correctly may lead to severe issues.

The readings from a pressure guage are connected to an IoT device connected with the pressure guage. The IoT device consists of a pressure sensor, a Wi-Fi module.

The pressure sensor reads the value of pressure on real time basis and the data is passed to the cloud using the Wi-Fi module. The absolute pressure sensor is adopted for our approach. In this sensor, the reference point is determined as vacuum. One side of the sensor is exposed to the surface to be measured while the other side is kept in vacuum.

The readings for every second is noted. The difference between the preceeding and current data going in increasing and decreasing manner and when the end point is reached, the reading stabilizes without further increase. This is the endpoint of the chemical reaction and at this time, the point is noted, and an alarm is given to stop functioning of the chemical process.

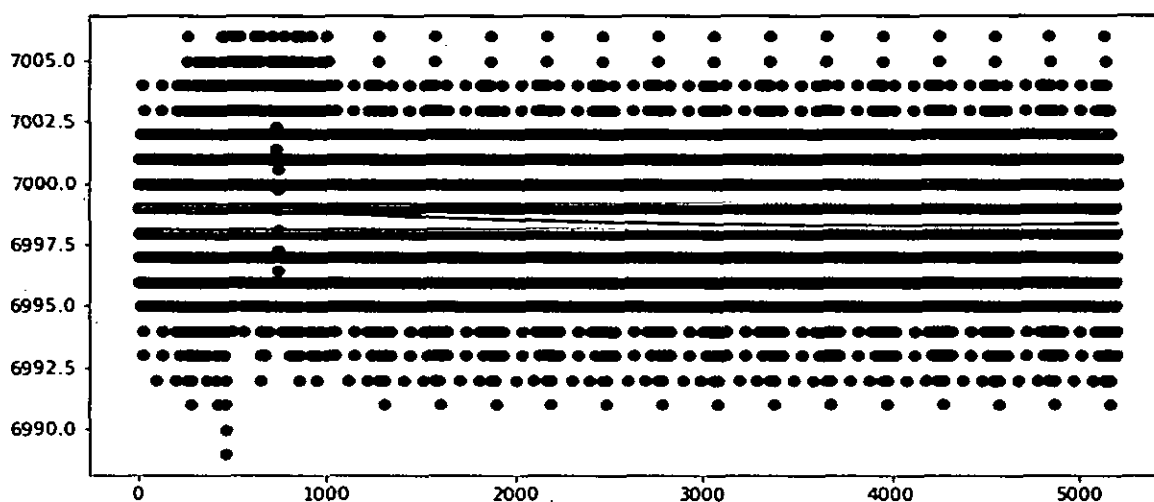


Fig.7: Polynomial Regression.

Data visualization deals with understanding the flow of data and representing it in a visual context so that patterns, trends and correlations could be detected in a easier manner.

The end point of the chemical reaction is observed by the sensor , stopped and the alarm is set to notify the end point to the user. Along with the alarm, the readings

from the pressure sensor those are passed to the cloud are represented visually for easier interpretation.

The values are proactively predicted and displayed with various prediction models. The distplot for the observed pressure is depicted in Fig.2 and it shows the end point of the reaction is reached at pressure 6997.5. Fig.3 represents pressure to count ratio and the scatter plot of time and pressure is depicted in Fig.4. The line plot which represents 5% data shows the pressure values changing up and down.

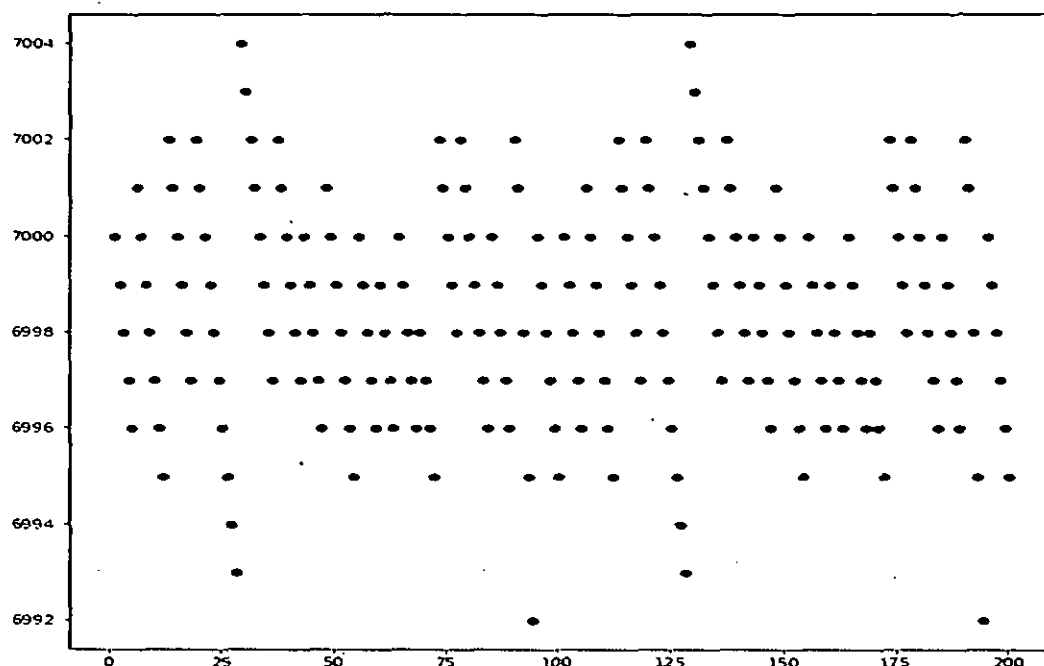


Fig. 8: Logistic Regression.

After the analysis of data, it is inferred that sudden increase of more than 100mm (wc) of negative pressure is the end point of the reaction. We have predicted our model with machine learning techniques such as linear regression, polynomial, logistic regression and Quantile Regression and it is found that Quantile Regression acts as a good predictor model.

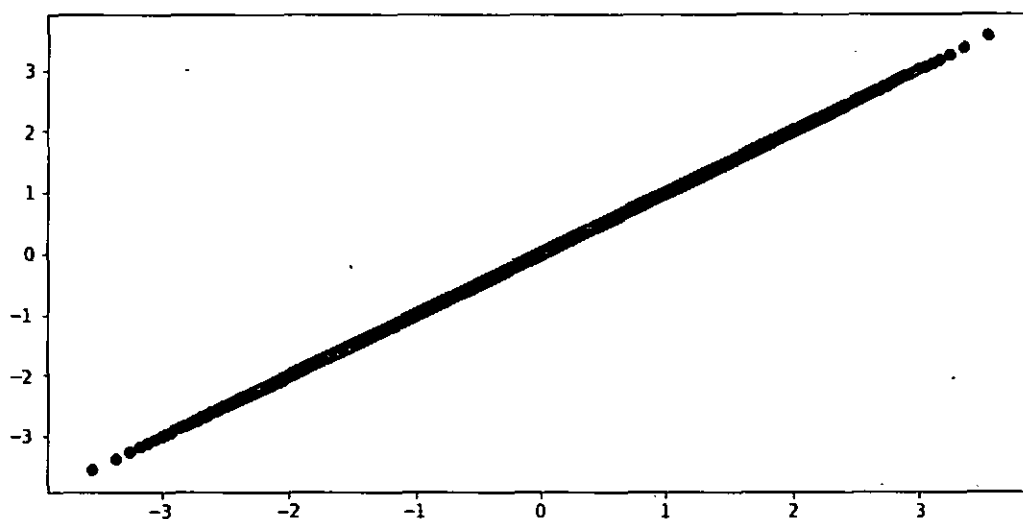


Fig 9: Quantile Regression.

In linear regression the regression intercept is obtained at 6998.64241 and regression coefficient is obtained at -0.0027. In polynomial regression the intercept value is obtained at 35.

Using logistic regression kmeans clustering value is taken as 3 and the results of linear regression, polynomial regression and logistic regression are depicted in Fig.6, Fig. 7 and Fig.8. In Quantile Regression, plot is observed in the range specified with eqn (3) and the results are depicted in Fig. which acts as a good predictor in comparison with other models.

`plt.plot([-2,-1,0,1,2],[-2,-1,0,1,2])`eqn(3)

I Claim:

1).A novel method to accurately estimate the end point of chemical reaction in remote locations has been proposed. The procedure involves monitoring different parameters like changes in pressure, volume and analyzing the data to find accurately the end point of locations using IOT and Machine learning techniques.

2). Once the pressure reaches end point, the process is stopped, and an alarm is send. Meanwhile, the observed data is visually monitored to predict the completion of chemical reaction. The novelty of our approach includes :

1. Accurate estimation of end points of chemical reactions and thus avoiding excess chemical usage .
2. Data capturing and operations at remote locations with IOT.
3. Less time consuming.
4. Experiments can be used with hazardous chemicals.
5. Can be applied in remote operations.

Dated this 21st January 2021


Signature: _____

Name: Dr.A.CHRISTY

GDP/R1

New Appn.

F-9

21st January, 2021

To,

MK
25-1-2021

D/6872

The Controller of Patents
Intellectual Property Office Building,
G.S.T. Road, Guindy,
Chennai-600032
Tamilnadu.



Subject: Filing of complete patent application titled "COMPLETION OF CHEMICAL REACTION IN REMOTE LOCATIONS USING DATA ANALYTICS BUILT ON INTERNET OF THINGS PLATFORM".

Dear Sir,

We would like to file the above titled complete patent application in India. We have enclosed the following documents for filing.

Also, we have enclosed Form 9 for publication of the patent application. Please take into consideration of the below documents and issue necessary acknowledgment.

- 1) Form 1 (4-pages, in duplicate)
- 2) Form 2 (Complete specification- 12 pages, in duplicate)
- 3) Form 3 (1 page, in duplicate)
- 4) Form 5 (2 pages, in duplicate)
- 5) Abstract (1 page, in duplicate)
- 6) Form 9 (1 Page)
- 7) Demand Draft

Particulars	Fees	DD Details
Form 1 (Application for patent)	RS. 1750/-	Amount: RS.4500/- DD number: 069863 Bank: KVB
Form 9 (Request for publication)	RS.2750/-	Date: Dec 24, 2020

Yours Sincerely

Signature: _____

Name: Dr.A.CHRISTY

Mobile: +91- 94885 72057

FORM 1
THE PATENTS ACT 1970
(39 of 1970)
&
The Patents Rules, 2003
APPLICATION FOR GRANT OF
PATENT

[See section 7, 54&135 and rule 20(1)]

(FOR OFFICE USE ONLY)

Application No: 20214100335

Filing Date: 25/01/2020

Amount of Fee Paid: 1750/-

CBR No: 2837

Signature:

MK

25-1-2021

700293427



1. APPLICANT (S)

Dr.A.CHRISTY	INDIAN	PROFESSOR, DEPT.OF COMPUTER SCIENCE AND ENGINEERING, SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY, JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI- 600119, TAMILNADU, INDIA .
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2. TYPE OF APPLICATION [Please tick (✓) at the appropriate category]

Ordinary (✓)		Convention ()		PCT-NP ()	
Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()

3A.INVENTOR (S)

Dr.A.CHRISTY	INDIAN	PROFESSOR, DEPT.OF COMPUTER SCIENCE AND ENGINEERING, SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY, JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI- 600119, TAMILNADU, INDIA .
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3. TITLE OF THE INVENTION: "COMPLETION OF CHEMICAL REACTION IN REMOTE
LOCATIONS USING DATA ANALYTICS BUILT ON INTERNET OF THINGS PLATFORM"

**4. ADDRESS FOR
CORRESPONDENCE OF
APPLICANT**

Dr.A.CHRISTY
PROFESSOR,
DEPT.OF COMPUTER SCIENCE AND
ENGINEERING,
SATHYABAMA INSTITUTE OF SCIENCE AND
TECHNOLOGY,
JEPPIAAR NAGAR, RAJIV GANDHI SALAI,
CHENNAI- 600119, TAMILNADU, INDIA .

E-mail: iprassistance@yahoo.com

Mobile number: 9488572057

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

Country	Application Number	Filing Date	Name of the Applicant	Title of the Invention

**6. PARTICULARS FOR FILING PATENT COOPERATION TREATY (PCT) NATIONAL
PHASE APPLICATION**

International Application Number.	International filling date as allotted by the receiving office

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, the above named inventors is/are the true & first inventor(s) for this invention and declare
that the applicants herein is/are my/our assignee or legal representative.

Signature: _____

Name: Dr.A.CHRISTY

(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

ENT. OFFICE. CHENNAI 28/01/2021 10:24

my/our assignee or legal representative.

(a) Date _____

(b) Signature(s)

(c) Name(s) of the signatory:

(iii) Declaration by the applicant(s):

I/ We, the applicant(s) hereby declare(s) that:-

✓ I am /~~We are~~ in possession of the above-mentioned invention.

✓ The ~~provisional~~/complete specification relating to the invention is filed with this application.

X The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by me/us before the grant of patent to me/us.

✓ There is no lawful ground of objection to the grant of patent to me/us.

X I am /~~We are~~ the assignee or legal representative of true & first inventors.

X The application or each of the application, particulars of which are given in Para 5 was the first application in convention country/countries in respect of my/our invention.

X I/We claim the priority from the above mentioned application(s) filed in convention country/countries and state that no application for protection in respect of the invention had been made in a convention country before that date by me/us or by any person from which I/We derive the title.

X My/our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Para – 6

X The application is divided out of my/our application particulars of which are given in Para – 7 and pray that this application may be treated as deemed to have been filed on _____ under sec. 16 of the Act.

X The said invention is an improvement in or modification of the invention particulars of which are given in Para – 8.

10. Following are the attachments with the application:

- a) Complete specification in Form 2 (in duplicate, 12 pages; 2 claims)
- b) Statement and undertaking in Form 3 (in duplicate, 1 page)
- c) Declaration of Inventorship in Form 5 (in duplicate, 2 pages)
- c) Abstract (in duplicate, 1 page)
- d) Form 9 (1 page, in duplicate)
- e) Demand Draft for RS.4500/- (DD number: 069863; Bank: KVB; Date: Dec 24, 2020)

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



Dated this 21st January 2021

Signature: _____

Name: **Dr.A.CHRISTY**

To,
The Controller of Patent,
The Patent Office, at Chennai.

25-Jan-2021/6872/202141003335/Form 1

PATENT OFFICE CHENNAI 28-01-2021 10:24



FORM 2

THE PATENTS ACT, 1970
(39 of 1970)

&

The Patents Rules, 2003

Complete Specification
(See section 10 and rule 13)

TITLE OF THE INVENTION:

**“COMPLETION OF CHEMICAL REACTION IN REMOTE LOCATIONS
USING DATA ANALYTICS BUILT ON INTERNET OF THINGS PLATFORM”**

1. APPLICANTS

Name	Nationality	Address
Dr.A.CHRISTY	INDIAN	PROFESSOR, DEPT.OF COMPUTER SCIENCE AND ENGINEERING, SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY, JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI- 600119, TAMILNADU, INDIA .

The following specification describes the invention and the manner in which it is to be performed.



FORM 3
THE PATENTS ACT, 1970
(39 of 1970)
&
The Patent Rules, 2003
STATEMENT AND UNDERTAKING UNDER SECTION 8
[See Section 8, RULE 12]

I/We,

Dr.A.CHRISTY	INDIAN	PROFESSOR, DEPT.OF COMPUTER SCIENCE AND ENGINEERING, SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY, JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI- 600119, TAMILNADU, INDIA .
--------------	--------	--

hereby declare:

- i) that I/~~We~~ have not made any application for the same/substantially same invention, outside India.
- ii) that the rights in the application(s) ~~has~~/have been assigned to: No one,
- that I/We undertake that up to the date of grant of patent by the Controller, I/We would keep him informed in writing the details regarding corresponding applications for patent filed outside India within six months from the date of filing of such applications.

Dated this 21st January 2021

Signature: _____

Name: Dr.A.CHRISTY

To
The, Controller of Patents
The patent Office, Chennai

Note: Strike out whichever is not applicable.

25-Jan-2021/6872/202141003335/Form 3

PATENT OFFICE CHENNAI 28/01/2021 10:25



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FORM 5**THE PATENTS ACT, 1970****(39 of 1970)****&****The Patent Rules, 2003****DECLARATION AS TO INVENTORSHIP****[See Section 10(6) AND RULE 13(6)]****1. NAME OF APPLICANT(S):**

I/We,

Dr.A.CHRISTY	INDIAN	PROFESSOR, DEPT.OF COMPUTER SCIENCE AND ENGINEERING, SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY, JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI- 600119, TAMILNADU, INDIA .
--------------	--------	--

hereby declare that the true and first inventor(s) of the invention disclosed in the complete specification titled **"COMPLETION OF CHEMICAL REACTION IN REMOTE LOCATIONS USING DATA ANALYTICS BUILT ON INTERNET OF THINGS PLATFORM"** is

2. INVENTOR (S)

Dr.A.CHRISTY	INDIAN	PROFESSOR, DEPT.OF COMPUTER SCIENCE AND ENGINEERING, SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY, JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI- 600119, TAMILNADU, INDIA .
--------------	--------	--

Dated this 21st Janauary 2021

Signature: 
Name: Dr.A.CHRISTY

3. DECLARATION TO BE GIVEN WHEN THE APPLICATION IN INDIA IS FILED BY THE APPLICANT (S) IN THE CONVENTION COUNTRY:-

We the applicant(s) in the convention country hereby declare that our right to apply for a patent in India is by way of assignment from the true and first inventor(s).

Dated this.. day of ..

Signature: -
Name of the signatory:

4. STATEMENT (to be signed by the additional inventor(s) not mentioned in the application form)

We assent to the invention referred to in the above declaration, being included in the complete specification filed in pursuance of the stated application.

Dated this.....day of20

Signature of the additional inventor(s): -
Name: -

To,
The Controller of Patent
The Patent Office, at Chennai

Note:-

- *Repeat boxes in case of more than one entry.
- *To be signed by the applicants(s) or by authorized registered patent agent otherwise where mentioned.
- *Name of the applicant should be given in full, family name in the beginning.
- *Complete address of the applicant should be given stating the postal index no./code, state and country.
- *Strike out the column which is/are not applicable.



FORM 9
THE PATENTS ACT, 1970
(39 of 1970)
&
THE PATENTS RULES, 2003
REQUEST FOR PUBLICATION
[See section 11A (2); rule 24A]

CBR : 2837
DATE : 25/01/2021
Amt : 2750/-

mk
25.1.2021

1. Name, address and nationality of applicant(s):

Dr.A.CHRISTY
PROFESSOR,
DEPT.OF COMPUTER SCIENCE AND ENGINEERING,
SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY,
JEPPIAAR NAGAR, RAJIV GANDHI SALAI,
CHENNAI- 600119, TAMILNADU, INDIA .

hereby request for early Publication of our Patent application Titled
"COMPLETION OF CHEMICAL REACTION IN REMOTE LOCATIONS
USING DATA ANALYTICS BUILT ON INTERNET OF THINGS
PLATFORM" and application No. dated.....21st January
2021..... under section 11A(2) of the Act.

Dated this 21st January 2021

Signature: 

Name: Dr.A.CHRISTY

To
The Controller of Patents,
The Patent Office, At...Chennai....

Note.— For fee: See First Schedule.

PATENT OFFICE CHENNAI 25/01/2021 10:24

25-Jan-2021/6872/202141003335/Form 9

3/20/2021

Intellectual Property India



Controller General of Patents, Designs and Trademarks
Department of Industrial Policy and Promotion
Ministry of Commerce and Industry

Application Details

APPLICATION NUMBER	202141008152
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	26/02/2021
APPLICANT NAME	1 . Y.Bevish Jinila 2 . S.Prayla Shyry
TITLE OF INVENTION	SMART SEGREGATOR ALERT TRASH BIN
FIELD OF INVENTION	MECHANICAL ENGINEERING
E-MAIL (As Per Record)	
ADDITIONAL-EMAIL (As Per Record)	ybevish@gmail.com
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	26/02/2021