PATENTS FILED

1. **A NOVEL TECHNIQUE FOR DIGITAL MARKETING USING ARTIFICIAL INTELLIGENCE AND BLOCKCHAIN**

Name of the Faculty: **Mrs. A. Aysha Muzammila,**

Assistant Professor,
Department of Business administration,
Wavoo Wajeeha Women's College of Arts and Science,
Tiruchendur road, Kayalpatnam,
Thoothukudi district ,Tamilnadu, India - 628204
Application Number: .202211042575 A
Publication Date: 05/08/2022

Link: https://acrobat.adobe.com/link/review?uri=urn:aaid:scds:US:ab16cefe-3819-36c3-9171-a018a5076dfe

PATENTS FILED

2. ARTIFICIAL INTELLIGENCE BASED SMART ROAD CLEANING ROBOT

Name of the Faculty: **Mrs. S. Kiruthika,**

Assistant Professor,

Department of Information Technology,

Wavoo Wajeeha Women's College of Arts and Science,

Tiruchendur road, Kayalpatnam,

Thoothukudi district ,Tamilnadu, India - 628204

Application Number: .202241057430 A

Publication Date: 14/10/2022

Page Number : **65725**

<table>
<tr><td colspan="2">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)]</td><td>(FOR OFFICE USE ONLY)

Application No.: ....
Filing Date: ....
Amount of Fee Paid: ....
CBR No.: ....
Signature: ....</td></tr>
</table>

1. APPLICANT(S):

Sr.No.	Name	Nationality	Address	Country	State	Distict	City
1	Ram Krishna	India	Assistant Professor, Galgotias University, Plot No2, Sector 17A, Yamuna Expressway, Greater Noida, Gautam Buddha Nagar, Uttar Pradesh, India-201310	India	Uttar Pradesh	Gautam Buddha Nagar	
2	Dr. Indrajit Goswami	India	Director-QAA, Department of IQAC, Universal Business School, Maharashtra, India - 410201	India	Maharashtra	Raigad	
3	Jayanthi. G	India	Assistant Professor,	India	Tamil Nadu	Kanchipuram	

			Department of Computer Science and Engineering, Sri Ramachandra Institute of Higher Education and Research, Tamil Nadu, India - 600116					
4	Dr. R Purushothaman	India	Associate Professor, Department of Computer Science and Engineering, Siddartha Institute of Science and Technology, Puttur, Tirupati, Andhra Pradesh, India - 517583	India	Andhra Pradesh	Chittoor		
5	Rinku Raheja	India	Assistant Professor, Department of Computer Science, National PG College, 2-Rana Pratap Marg, Hazratganj, Lucknow, Uttar Pradesh, India - 226001	India	Uttar Pradesh	Lucknow		
6	L. Haldurai	India	Assistant Professor, Department of	India	Tamil Nadu	Coimbatore		

			Computer Technology, Kongunadu Arts and Science College (Autonomous), GN Mills Post, Coimbatore, Tamil Nadu, India - 641029				
7	A. Aysha Muzammila	India	Assistant Professor, Department of Business administration, Wavoo wajeeha women's college of arts and science, Tiruchendur road, Kayalpatnam, Thoothukudi district ,Tamilnadu, India - 628204	India	Tamil Nadu	Thoothukudi	
8	Dr. Bhargabjyoti Saikia	India	Assistant Professor, Department of Electronics and Communication Engineering, DUIET, Dibrugarh University, Dibrugarh, Assam, India - 786004	India	Assam	Dibrugarh	
9	Muthulakshmi R	India	Faculty	India	Kerala	Ernakulam	

			Associate, Department of Commerce and Management, Amrita School of Arts and Science Kochi Campus, Brahmasthanam, Edapally North, Kerala, India - 682024				
10	Prabhat Patel	India	Assistant Professor, Department of Mechanical Engineering, Medi-Caps University, A.B.Road, Rau, Indore, Madhya Pradesh, India - 453331	India	Madhya Pradesh	Indore	
11	Dr. S. Saravanan	India	Assistant Professor, PG and Research department of commerce, Dr. Ambedkar Government Arts College, Vyasarpadi, Chennai, Tamilnadu, India - 600039	India	Tamil Nadu	Chennai	
12	Sruthi. S	India	Founder, Paradox Publications Guide House,	India	Kerala	Thiruvananthapuram	

			Trivandrum, Kerala, India				

2. INVENTOR(S):

Sr.No.	Name	Nationality	Address	Country	State	Distict	City
1	Ram Krishna	India	Assistant Professor, Galgotias University, Plot No2, Sector 17A, Yamuna Expressway, Greater Noida, Gautam Buddha Nagar, Uttar Pradesh, India-201310	India	Uttar Pradesh	Gautam Buddha Nagar	
2	Dr. Indrajit Goswami	India	Director-QAA, Department of IQAC, Universal Business School, Maharashtra, India - 410201	India	Maharashtra	Raigad	
3	Jayanthi. G	India	Assistant Professor, Department of Computer Science and Engineering, Sri Ramachandra Institute of Higher	India	Tamil Nadu	Kanchipuram	

			Education and Research, Tamil Nadu, India - 600116				
4	Dr. R Purushothaman	India	Associate Professor, Department of Computer Science and Engineering, Siddartha Institute of Science and Technology, Puttur, Tirupati, Andhra Pradesh, India - 517583	India	Andhra Pradesh	Chittoor	
5	Rinku Raheja	India	Assistant Professor, Department of Computer Science, National PG College, 2-Rana Pratap Marg, Hazratganj, Lucknow, Uttar Pradesh, India - 226001	India	Uttar Pradesh	Lucknow	
6	L. Haldurai	India	Assistant Professor, Department of Computer Technology, Kongunadu Arts and Science College (Autonomous), GN Mills Post,	India	Tamil Nadu	Coimbatore	

			Coimbatore, Tamil Nadu, India - 641029				
7	A. Aysha Muzammila	India	Assistant Professor, Department of Business administration, Wavoo wajeeha women's college of arts and science, Tiruchendur road, Kayalpatnam, Thoothukudi district ,Tamilnadu, India - 628204	India	Tamil Nadu	Thoothukudi	
8	Dr. Bhargabjyoti Saikia	India	Assistant Professor, Department of Electronics and Communication Engineering, DUIET, Dibrugarh University, Dibrugarh, Assam, India - 786004	India	Assam	Dibrugarh	
9	Muthulakshmi R	India	Faculty Associate, Department of Commerce and Management, Amrita School of Arts and Science Kochi	India	Kerala	Ernakulam	

			Campus, Brahmasthanam, Edapally North, Kerala, India - 682024				
10	Prabhat Patel	India	Assistant Professor, Department of Mechanical Engineering, Medi-Caps University, A.B.Road, Rau, Indore, Madhya Pradesh, India - 453331	India	Madhya Pradesh	Indore	
11	Dr. S. Saravanan	India	Assistant Professor, PG and Research department of commerce, Dr. Ambedkar Government Arts College, Vyasarpadi, Chennai, Tamilnadu, India - 600039	India	Tamil Nadu	Chennai	
12	Sruthi. S	India	Founder, Paradox Publications Guide House, Trivandrum, Kerala, India	India	Kerala	Thiruvananthapuram	

3. TITLE OF THE INVENTION: A NOVEL TECHNIQUE FOR DIGITAL MARKETING USING ARTIFICIAL INTELLIGENCE AND BLOCKCHAIN

4. ADDRESS FOR CORRESPONDENCE OF APPLICANT / AUTHORISED PATENT AGENT IN INDIA:
Ram Krishna, Assistant Professor, Galgotias University, Plot No2, Sector 17A, Yamuna Expressway, Greater Noida, Gautam Buddha Nagar, Uttar Pradesh, India-201310

Telephone No.:

Fax No.:

Mobile No: 8500580495

E-mail: ram.krishna@galgotiasuniversity.edu.in

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

Sr.No.	Country	Application Number	Filing Date	Name of the Applicant	Tilte of the Invention

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 ,Ram Krishna,Dr. Indrajit Goswami,Jayanthi. G,Dr. R Purushothaman,Rinku Raheja,L. Haldurai,A. Aysha Muzammila,Dr. Bhargabjyoti Saikia,Muthulakshmi R,Prabhat Patel,Dr. S. Saravanan,Sruthi. S, 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): Ram Krishna,Dr. Indrajit Goswami,Jayanthi. G,Dr. R Purushothaman,Rinku Raheja,L. Haldurai,A. Aysha Muzammila,Dr. Bhargabjyoti Saikia,Muthulakshmi R,Prabhat Patel,Dr. S. Saravanan,Sruthi. S

(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: Ram Krishna,Dr. Indrajit Goswami,Jayanthi. G,Dr. R Purushothaman,Rinku Raheja,L. Haldurai,A. Aysha Muzammila,Dr. Bhargabjyoti Saikia,Muthulakshmi R,Prabhat Patel,Dr. S. Saravanan,Sruthi. S

(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.**
- **I am/We are, the assignee or legal representative to true first inventors.**

10. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION:

Sr.	Document Description	FileName

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: Venugopal Chandika

To The Controller of Patents

The Patent office at NEW DELHI

This form is electronically generated.

(54) Title of the invention : A NOVEL TECHNIQUE FOR DIGITAL MARKETING USING ARTIFICIAL INTELLIGENCE AND BLOCKCHAIN

(71)Name of Applicant :
  1)Ram Krishna
    Address of Applicant :Assistant Professor, Galgotias University, Plot No2, Sector 17A, Yamuna Expressway, Greater Noida, Gautam Buddha Nagar, Uttar Pradesh, India-201310 ----------- -----------
  2)Dr. Indrajit Goswami
  3)Jayanthi. G
  4)Dr. R Purushothaman
  5)Rinku Raheja
  6)L. Haldurai
  7)A. Aysha Muzammila
  8)Dr. Bhargabjyoti Saikia
  9)Muthulakshmi R
  10)Prabhat Patel
  11)Dr. S. Saravanan
  12)Sruthi. S
Name of Applicant : NA
Address of Applicant : NA
(72)Name of Inventor :
  1)Ram Krishna
Address of Applicant :Assistant Professor, Galgotias University, Plot No2, Sector 17A, Yamuna Expressway, Greater Noida, Gautam Buddha Nagar, Uttar Pradesh, India-201310 ----------- -----------
  2)Dr. Indrajit Goswami
Address of Applicant :Director-QAA, Department of IQAC, Universal Business School, Maharashtra, India - 410201 ----------- -----------
  3)Jayanthi. G
Address of Applicant :Assistant Professor, Department of Computer Science and Engineering, Sri Ramachandra Institute of Higher Education and Research, Tamil Nadu, India - 600116 ----------- -----------
  4)Dr. R Purushothaman
Address of Applicant :Associate Professor , Department: Computer Science and Engineering, Siddartha Institute of Science and Technology, Puttur, Tirupati, Andhra Pradesh, India - 517583 ----------- -----------
  5)Rinku Raheja
Address of Applicant :Assistant Professor , Department of Computer Science Department, National PG College, 2-Rana Pratap Marg, Hazratganj, Lucknow, Uttar Pradesh, India - 226001 ----------- -----------
  6)L. Haldurai
Address of Applicant :Assistant Professor , Department of Computer Technology, Kongunadu Arts and Science College (Autonomous), GN Mills Post, Coimbatore, Tamil Nadu, India - 641029 ----------- -----------
  7)A. Aysha Muzammila
Address of Applicant :Assistant Professor , Department of Business administration, Wavoo wajeeha women's college of arts and science, Tiruchendur road, Kayalpatnam, Thoothukudi district ,Tamilnadu, India - 628204 ----------- -----------
  8)Dr. Bhargabjyoti Saikia
Address of Applicant :Assistant Professor , Department of Electronics and Communication Engineering, Dibrugarh University Institute of Engineering & Technology (DUIET), Dibrugarh University, Dibrugarh, Assam, India - 786004 ----------- -----------
  9)Muthulakshmi R
Address of Applicant :Faculty Associate, Department of Commerce and Management, Amrita School of Arts and Science Kochi Campus Brahmasthanam Edapally North, Kerala, India - 682024 ----------- -----------
  10)Prabhat Patel
Address of Applicant :Assistant Professor , Department of Mechanical Engineering, Medi-Caps University, A.B.Road, Rau, Indore, Madhya Pradesh, India - 453331 ----------- -----------
  11)Dr. S. Saravanan
Address of Applicant :Assistant Professor, PG and Research department of commerce department, Dr. Ambedkar Government Arts College, Vyasarpadi, Chennai, Tamilnadu, India - 600039 ----------- -----------
  12)Sruthi. S
Address of Applicant :Founder, Paradox Publications Guide House, Trivandrum, Kerala, India ----------- -----------

(57) Abstract :
The current invention pertains to digital marketing that is based on artificial intelligence and the internet of things. We designed the present invention to be an IoT (Internet of Things) based highway advertisement digital board in which a person can advertise their product from their smartphone without even travelling and coordinating across billboard owners across several districts or states. This was accomplished through the use of our invention. As a consequence of this, there is an immediate need for more study in this field given the quick pace at which both the technology based on roadside billboards and the customer's perception of the same is evolving.

No. of Pages : 11 No. of Claims : 8

A NOVEL TECHNIQUE FOR DIGITAL MARKETING USING ARTIFICIAL INTELLIGENCE AND BLOCKCHAIN

FIELD OF THE INVENTION

This invention relates to the field of Marketing. A new approach to digital marketing that incorporates artificial intelligence (AI) and the blockchain.

BACKGROUND OF THE INVENTION

Artificial intelligence (AI) simulates human intellect on computers. Expert systems, NLP, voice recognition, and machine vision are AI applications. The 'Internet of Things (IoT) is the network and communication between internet-enabled gadgets. IoT will let marketers monitor the buying funnel, user location, personalised targeting, and more. The Internet of Things allows marketers to bridge the digital and physical worlds by thinking outside the box and beyond tailored messages.

Based on a literature review, the present research investigates the main shift in the marketing approach to attract millennials using IoT. Most studies define Millennials as individuals born between 1980 and 2000. Millennials who use IoT are more willing to share their data with advertising and companies, allowing marketers to better target customers. Existing systems have flaws. Therefore, a new marketing system is needed. The innovation provides a new digital marketing approach integrating AI and blockchain.

SUMMARY OF THE INVENTION

Therefore, the current invention offers a unique method for conducting digital marketing that makes use of both blockchain and artificial intelligence. One may market their goods via their smartphone without ever travelling and coordinating with billboard owners across various districts or states using the current innovation, which is an IoT (Internet of Things) based highway advertising digital board that was created.

BRIEF DESCRIPTION OF THE DRAWINGS
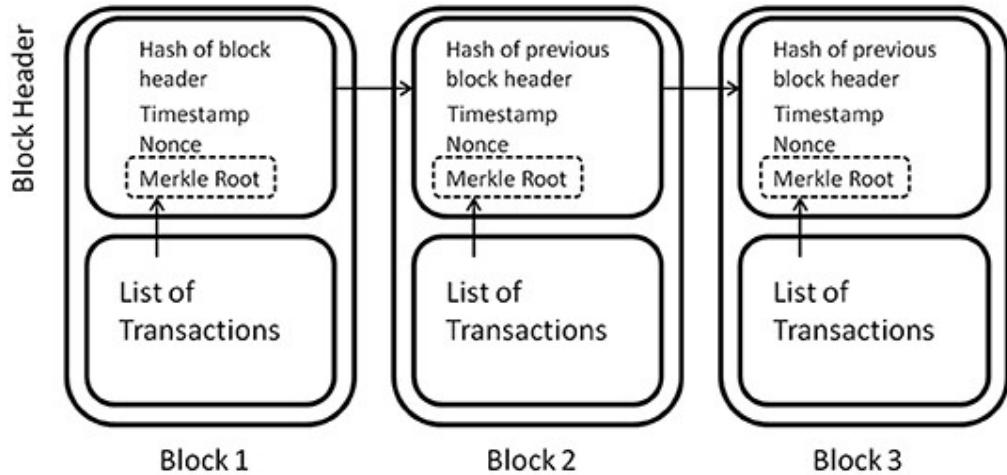
**Fig.1** Depicts the Blockchain in Digital Marketing.
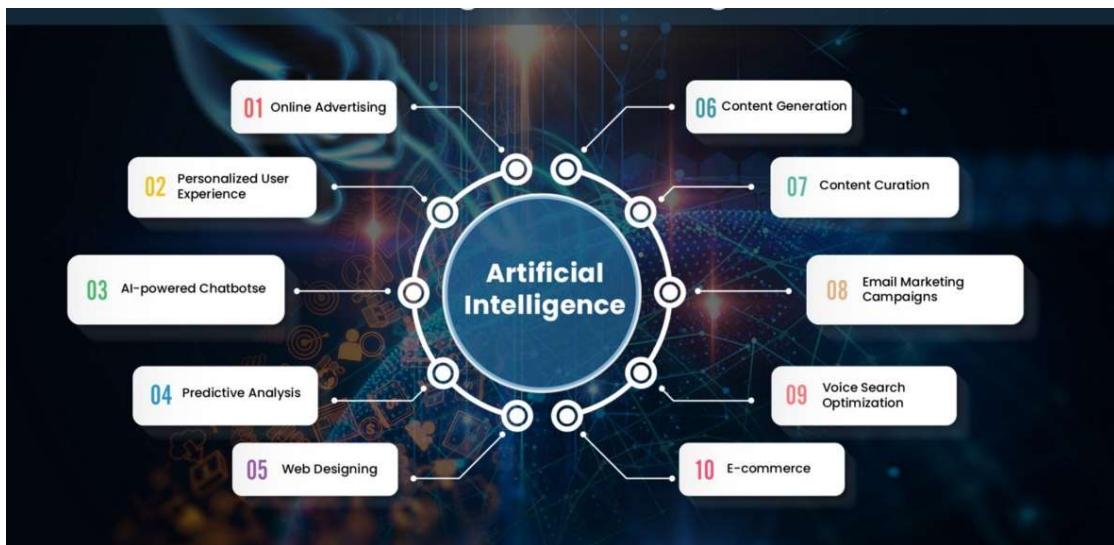
Fig.2 Depicts the Applications of AI in Digital Marketing.

BRIEF DESCRIPTION OF THE INVENTION

The replication of human cognitive processes by machines, most notably computer systems, is what is referred to as artificial intelligence (AI). Expert systems, natural language processing (NLP), voice recognition, and machine vision are all examples of specific uses of artificial intelligence. The phrase "Internet of Things" (IoT) was created to define the network and communication between many internet-enabled gadgets that are used in everyday life.... In addition, the Internet of Things will be of great assistance to the marketing sector in terms of monitoring the sales funnel, customer location awareness, tailored targeting, and a great deal more. When marketers are willing to think creatively and go beyond the simple concept of personalised messaging, the Internet of Things gives them the ability to create entirely new experiences by bridging the digital and physical worlds. These experiences can only be created, however, if they use the Internet of Things. Based on a thorough research, the present research investigates the significant shift in marketing approach that would be required to effectively communicate with members of the millennial generation if they adopted IoT. According to the findinJgs of the vast majority of studies, those people who were born between the early 1980s and the early 2000s are the members of the Millennial generation. Millennials who make use of IoT are more inclined to share their data with companies and advertising, which enables marketers to collect information and target customers in a more targeted manner.

The Internet of Things makes it possible to implement tailored applications across the board, including in the fields of manufacturing and service provision. The analysis of data from the Internet of Things may, for instance, make it easier to provide individualised medical treatment or determine the optimal lot size for certain products, which effectively enables production processes to be modified as necessary. In the context of production, this will make it possible to get more customised outcomes rather than making an effort to anticipate the need of the general public. The Internet of Things will also encourage users in ways that would otherwise be impossible, such as helping persons with disabilities and special needs to be more autonomous. This is just one example of how the IoT will change people's lives for the better. The incorporation of IoTs into people's daily lives would make it necessary to conduct an in-depth analysis of the implications that this would have for their safety and privacy. This analysis would need to take into account the maintenance of people's personal data as well as

the implementation of appropriate safeguards. The development of suitable regulatory systems for protecting consumer rights and privacy would be an essential factor in fostering recognition and confidence. Because of the Internet of Things, companies and government organisations will be able to accomplish their objectives with strategies that are novel and innovative. People are increasingly communicating with their technology and improving their lives by utilising something called the Internet of Things. ig.1 Depicts the Blockchain in Digital Marketing.

As a consequence of the Internet of Things, different requirements would be imposed on the infrastructures and facilities used for connecting devices. These innovations will be supported by policies that make specific infrastructures and facilities more cost-effective, increase their efficiency, and increase their use. Because of this, international governance and standards may need to be verified in order to assure the performance and stability of communication networks and facilities, which will ultimately lead to the expansion of confidence in the Internet of Things (IoT). The Internet of Things is not just a burgeoning infrastructure but also a burgeoning creative force in its own right. The capacity of innovators to conceive of and introduce novel Internet of Things methods, as well as the capacity of policymakers to develop legislative and regulatory mechanisms in key areas such as telecommunications, safety, protection, and consumer policy, are both factors that influence the type of innovation, the field in which it is implemented, and the possible benefits that can be realised. Member nations will benefit from better understanding of best practises and policy approaches in the evolving internet of things climate. \The Internet of Things (IoT) refers to an ecosystem in which the operation of software and services is enabled by the collection of data from sensors that can sense and interact with the physical world. In the Internet of Things, devices and artefacts offer networking connectivity, which may be a direct connection or one that is mediated via a local or wide area network (LAN or WAN). In addition to the Internet of Things, another subject that is analogous is Machine to Machine (M2M) communications. M2M communications are distinguished by the fact that they include the autonomous transfer of data between computers and applications with little or no human interaction. M2M eliminates the need for human mediation in such circumstance since it incorporates knowledge into the framework to encourage the promotion of automated judgement and intervention.

A battery according to the present invention is made up of one or more electrochemical cells, and it may be connected to other pieces of electrical equipment such flashlights, mobile phones, and electric vehicles. If the electric power comes from a battery, the controller will be attached to the battery's cathodic terminal, which is positive, and the anode, which is negative. The micro controller may communicate with the outside world via its connections to the other hardware components. The aforementioned microcontroller is a single-chip device that incorporates a processor, memory, and input/output (I/O) peripherals. The individuals in charge of marketing transmit messages to the Wi-Fi Module so that the messages may be shown on the board. This is accomplished by using the road side unit, and in the marketing personnel unit, the Blynk app is running on a smartphone that is connected to the Wi-Fi module. The information is then saved in the cloud server, and the controller is used to retrieve the data so that it can be displayed in the road side unit.

The ESP8266 Wi-Fi Module is a self-contained SOC that comes with an integrated TCP/IP protocol stack. It can provide access to your Wi-Fi network for whatever microcontroller you want to use. The ESP8266 has the ability to either host an application or offload all Wi-Fi networking tasks from another application processor. Both of these options are possible. The primary function of this component is to facilitate the connecting of the advertising board module to a connection consisting of numerous networks. In order to enable the wireless transmission of information between the server and the client.

Blynk is a new platform that gives you the ability to rapidly construct interfaces for controlling and monitoring your hardware projects using your iOS or Android mobile. You can do this from anywhere. The user is able to construct a project dashboard by installing the Blynk software and then arranging buttons, sliders, graphs, and other widgets onto the screen in the desired configuration. An application that is simple to use and allows the user to easily collect the information necessary for the creation of his product. Applications of AI in digital marketing are shown in Fig.2.

The detailed description makes clear many of the features and benefits of the invention, and as a result, the claims that are attached to it are meant to cover all of those features and benefits of the invention that are considered to be within the purview of the invention's original intention and intended application. In addition, it is not desired to restrict the invention to the precise construction and operation that has been illustrated and described. As a result, any suitable

modifications and equivalents may be resorted to, as long as they fall within the scope of the invention. This is because those who are skilled in the art will readily be able to think of numerous modifications and variations. After intelligent management of the system for prescribing medications, the suggested system additionally includes an autonomous system for the distribution of medications. Additionally, the database keeps track of information on the duration of the drug delivery period to the patient. This allows for an alert to be given to the user as well as the delivery person when the user's purchase of the medicine is approaching its due date. The user and the person who will be delivering the pharmaceuticals both get a copy of the list of medications that will be sent to them. This allows for the delivery person to verify that the user does not already have any medications that are not required. The user has the ability to back out of any pharmaceutical purchase up to the point when the delivery is given.

Whenever an order is prompted to the user, a crosscheck of the drug interactions is performed; in the event that any side effects due to any drug interactions occur, alerts are sent not only to the user but also to an authenticated person related to the pharmacy service and to the pharmacy management. Any self-prescription is provided by an alert to the user. If there is any negative effect due to a medication interaction, then the order is immediately cancelled by the autonomous system. The patient only receives authorised prescriptions when they have them delivered. This strategy is effective in the management of medication prescriptions, and it guarantees that there will be no adverse effects caused by drug interactions.

A NOVEL TECHNIQUE FOR DIGITAL MARKETING USING ARTIFICIAL INTELLIGENCE AND BLOCKCHAIN

ABSTRACT

The current invention pertains to digital marketing that is based on artificial intelligence and the internet of things. We designed the present invention to be an IoT (Internet of Things) based highway advertisement digital board in which a person can advertise their product from their smartphone without even travelling and coordinating across billboard owners across several districts or states. This was accomplished through the use of our invention. As a consequence of this, there is an immediate need for more study in this field given the quick pace at which both the technology based on roadside billboards and the customer's perception of the same is evolving.

CLAIMS

1. The Internet of Things makes it possible to implement tailored applications across the board, including in the fields of manufacturing and service provision.

2. A battery according to the present invention is made up of one or more electrochemical cells, and it may be connected to other pieces of electrical equipment such as flashlights, mobile phones, and electric vehicles.

3. A unique system for digital marketing utilising AI and blockchain, characterised in that a battery with external electrical equipment such as torches, mobile phones, and electric cars, wherein the cathodic terminal is positive and the anode is negative, is linked to the controller.

4. A method for digital marketing leveraging AI and blockchain in which marketers transmit messages to a Wi-Fi Module to show on a board.

5. The revolutionary digital marketing system employing AI and blockchain, where the ESP8266 Wi-Fi Module is a self-contained SOC with an integrated TCP/IP protocol stack that can allow any microcontroller access to your Wi-Fi network.

6. Blynk is a new platform that gives you the ability to rapidly construct interfaces for controlling and monitoring your hardware projects using your iOS or Android mobile.

7. Whenever an order is suggested to the user, a crosscheck of medication interactions is done; if adverse effects due to drug interactions occur, alarms are given to the user, a pharmacy service representative, and pharmacy management.

FORM 9

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

REQUEST FOR PUBLICATION

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

I/We **Ram Krishna,Dr. Indrajit Goswami,Jayanthi. G,Dr. R Purushothaman,Rinku Raheja,L. Haldurai,A. Aysha Muzammila,Dr. Bhargabjyoti Saikia,Muthulakshmi R,Prabhat Patel,Dr. S. Saravanan,Sruthi. S** hereby request for early publication of my/our [Patent Application No.] TEMP/E-1/48602/2022-DEL

Dated **26/07/2022 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,
The Patent Office,
At New Delhi

This form is electronically generated.

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :07/10/2022

(21) Application No.202241057430 A

(43) Publication Date : 14/10/2022

(54) Title of the invention : ARTIFICIAL INTELLIGENCE BASED SMART ROAD CLEANING ROBOT

(51) International classification : A47L0011400000, A47L0009040000, B65F0001140000, A47L0011240000, E01H0001080000	(71)**Name of Applicant :**
	  1)**DR. K. LATHA**
	    Address of Applicant :ASSOCIATE PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, SRI SAIRAM ENGINEERING COLLEGE, SAI LEO NAGAR, WEST TAMBARAM, CHENNAI, TAMIL NADU, INDIA 600 044. ----------- -----------
	  2)**MS. KAVITHA.D**
	  3)**MS. A. SHALI**
	  4)**MR. ANISH. T. P**
	  5)**MS. JEEVITHA. D**
	  6)**MS. R. TAMILROJA**
	  7)**MS. FATHIMA MUBARAKKAA**
	  8)**DR. K. JAYASAKTHI VELMURUGAN**
	  9)**MS. S. PRATHIPA**
	  10)**S. KIRUTHIKA**
	Name of Applicant : NA
	Address of Applicant : NA
	(72)**Name of Inventor :**
	  1)**DR. K. LATHA**
	Address of Applicant :ASSOCIATE PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, SRI SAIRAM ENGINEERING COLLEGE, SAI LEO NAGAR, WEST TAMBARAM, CHENNAI, TAMIL NADU, INDIA 600 044. ----------- -----------
	  2)**MS. KAVITHA.D**
	Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, SRI SAIRAM ENGINEERING COLLEGE, SAI LEO NAGAR, WEST TAMBARAM, CHENNAI, TAMIL NADU, INDIA 600 044. ----------- -----------
	  3)**MS. A. SHALI**
	Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, SRI SAIRAM ENGINEERING COLLEGE, SAI LEO NAGAR, WEST TAMBARAM, CHENNAI, TAMIL NADU, INDIA 600 044. ----------- -----------
	  4)**MR. ANISH. T. P**
	Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, R.M.K COLLEGE OF ENGINEERING AND TECHNOLOGY, R.S.M. NAGAR, PUDUVOYAL, GUMMIDIPOONDI TALUK, TIRUVALLUR DISTRICT, CHENNAI, TAMIL NADU, INDIA 601 206. ----------- -----------
	  5)**MS. JEEVITHA. D**
	Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, JEPPIAAR ENGINEERING COLLEGE, JEPPIAAR NAGAR, RAJIV GANDHI SALAI, SEMMENCHERY, CHENNAI, TAMIL NADU, INDIA 600 119. ----------- -----------
	  6)**MS. R. TAMILROJA**
	Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, JEPPIAAR ENGINEERING COLLEGE, JEPPIAAR NAGAR, RAJIV GANDHI SALAI, SEMMENCHERY, CHENNAI, TAMIL NADU, INDIA 600 119. ----------- -----------
	  7)**MS. FATHIMA MUBARAKKAA**
	Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, SRI SAIRAM ENGINEERING COLLEGE, SAI LEO NAGAR, WEST TAMBARAM, CHENNAI, TAMIL NADU, INDIA 600 044. ----------- -----------
	  8)**DR. K. JAYASAKTHI VELMURUGAN**
	Address of Applicant :ASSOCIATE PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, JEPPIAAR ENGINEERING COLLEGE, JEPPIAAR NAGAR, RAJIV GANDHI SALAI, SEMMENCHERY, CHENNAI, TAMIL NADU, INDIA 600 119. ----------- -----------
	  9)**MS. S. PRATHIPA**
	Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, SRI SAIRAM ENGINEERING COLLEGE, SAI LEO NAGAR, WEST TAMBARAM, CHENNAI, TAMIL NADU, INDIA 600 044. ----------- -----------
	  10)**S. KIRUTHIKA**
	Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF INFORMATION TECHNOLOGY, WAVOO WAJEEHA WOMENS ARTS AND SCIENCE COLLEGE, TIRUCHENDUR ROAD, KAYALPATNAM, THOOTHUKUDI DISTRICT, TAMIL NADU, INDIA 628 204. ----------- -----------

(86) International Application No : NA Filing Date : NA	
(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	

(57) Abstract :
Abstract The mechanical is a sophisticated structure with its own Virtuoso taken care of with computer trustworthiness, allowing it to finish the work in accordance with the calculation plan. The upside judgement regulator, which is intended to keep the vehicle going, is used to direct one's own movement. The smart street cleaning sweeper machine is propelled by man-made reasoning and an approach involving the street cleaning sweeper machine. The most recent innovation is more related to the intelligent cleaning sweeper machine, which is controlled by artificial reasoning and process boundaries and distinguishable to a sort of intelligent cleaning robot in light of cutting-edge method arranging strategy and its flawless approach. This is also identified using AI techniques and image processing sources.Furthermore, wherein the garbage container includes a repository gulf that is open to the brush chamber to the extent that residue is cleared by turning the brush gathering, is moved through the brush chamber via pivot of the brush gathering, and is moved into the flotsam and jetsam repository through the container bay, which is immediately connected to the brush chamber, and wherein a tension machine for independently moving the brush gathering is included.

No. of Pages : 16 No. of Claims : 5

Office of the Controller General of Patents, Designs & Trade Marks
Department of Industrial Policy & Promotion,
Ministry of Commerce & Industry,
Government of India

INTELLECTUAL
PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS
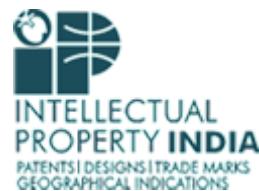
Application Details	
APPLICATION NUMBER	202241057430
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	07/10/2022
APPLICANT NAME	1 . DR. K. LATHA 2 . MS. KAVITHA.D 3 . MS. A. SHALI 4 . MR. ANISH. T. P 5 . MS. JEEVITHA. D 6 . MS. R. TAMILROJA 7 . MS. FATHIMA MUBARAKKAA 8 . DR. K. JAYASAKTHI VELMURUGAN 9 . MS. S. PRATHIPA 10 . S. KIRUTHIKA
TITLE OF INVENTION	ARTIFICIAL INTELLIGENCE BASED SMART ROAD CLEANING ROBOT
FIELD OF INVENTION	MECHANICAL ENGINEERING
E-MAIL (As Per Record)	
ADDITIONAL-EMAIL (As Per Record)	klathasn@gmail.com
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	14/10/2022

Application Status	
APPLICATION STATUS	Awaiting Request for Examination

			View Documents

➡️ Filed ➡️ Published ➡️ RQ Filed ➡️ Under Examination

➡️ Disposed
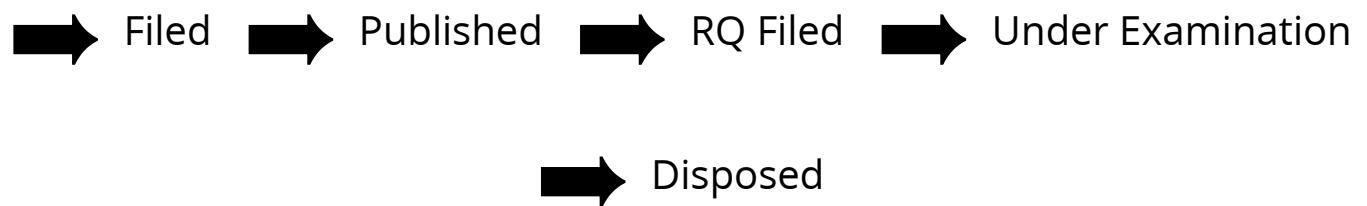
In case of any discrepancy in status, kindly contact ipo-helpdesk@nic.in

Office of the Controller General of Patents, Designs & Trade Marks
Department of Industrial Policy & Promotion,
Ministry of Commerce & Industry,
Government of India

(http://ipindia.nic.in/index.htm)

INTELLECTUAL
PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

(http://ipindia.nic.in/index.htm)

Document Name	*Created Date/Uploaded Date
202241057430-Abstract_As Filed_07-10-2022.pdf	07/10/2022
202241057430-Claims_As Filed_07-10-2022.pdf	07/10/2022
202241057430-Description Complete_As Filed_07-10-2022.pdf	07/10/2022
202241057430-Drawings_As Filed_07-10-2022.pdf	07/10/2022
202241057430-Form1_As Filed_07-10-2022.pdf	07/10/2022
202241057430-Form2 Title Page_Complete_07-10-2022.pdf	07/10/2022
202241057430-Form9_Early Publication_07-10-2022.pdf	07/10/2022

Note: The displayed "Created Date/Uploaded Date" is dynamic in nature and depends upon the operating system environment of storage. For more information, please contact the Patent office of the respective jurisdiction

"FORM 1	(FOR OFFICE USE ONLY)
THE PATENTS ACT 1970 (39 of 1970) and	
THE PATENTS RULES, 2003 **APPLICATION**	D/99065
FOR GRANT OF PATENT	
(See section 7, 54 and 135 and sub-rule (1) of rule 20)	

710011865	Application No.	202241057430
	Filing date:	07|10|2022
	Amount of Fee paid:	1750/–
	CBR No:	40570
	Signature:	P.2/ 07/10/22

1. APPLICANT'S REFERENCE /IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)	

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. APPLICANT(S)

Name in Full	Nationality	Country of Residence	Address of the Applicant	
Dr. K. LATHA	INDIAN	INDIA	House No.	Associate Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College
			Street	Sai Leo Nagar, West Tambaram
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	600 044
Name in Full	Nationality	Country of Residence	Address of the Applicant	
Ms. KAVITHA.D	INDIAN	INDIA	House No.	Assistant Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College

1

			Street	Sai Leo Nagar, West Tambaram
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	600 044
Name in Full	Nationality	Country of Residence	Address of the Applicant	
Ms. A. SHALI	INDIAN	INDIA	House No.	Assistant Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College
			Street	Sai Leo Nagar, West Tambaram
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	600 044
Name in Full	Nationality	Country of Residence	Address of the Applicant	
Mr. ANISH. T. P	INDIAN	INDIA	House No.	Assistant Professor, Department of Computer Science and Engineering, R.M.K College Of Engineering And Technology
			Street	R.S.M. Nagar, Puduvoyal, Gummidipoondi Taluk, Tiruvallur District
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	601 206.
Name in Full	Nationality	Country of Residence	Address of the Applicant	
Ms. JEEVITHA. D	INDIAN	INDIA	House No.	Assistant Professor, Department of Computer Science and Engineering, Jeppiaar Engineering College

2

			Street	Jeppiaar Nagar, Rajiv Gandhi Salai, Semmenchery
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	600 119

Name in Full	Nationality	Country of Residence	Address of the Applicant	
Ms. R.TAMILROJA	INDIAN	INDIA	House No.	Assistant Professor, Department of Computer Science and Engineering, Jeppiaar Engineering College
			Street	Jeppiaar Nagar, Rajiv Gandhi Salai, Semmenchery
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	600 119

Name in Full	Nationality	Country of Residence	Address of the Applicant	
Ms. FATHIMA MUBARAKKAA	INDIAN	INDIA	House No.	Assistant Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College
			Street	Sai Leo Nagar, West Tambaram
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	600 044

Name in Full	Nationality	Country of Residence	Address of the Applicant	
Dr. K. JAYASAKTHI VELMURUGAN	INDIAN	INDIA	House No.	Associate Professor, Department of Computer Science and Engineering, Jeppiaar Engineering College
			Street	Jeppiaar Nagar, Rajiv Gandhi Salai, Semmenchery

3

City	Chennai
State	Tamil Nadu
Country	India
Pin code	600 119

Name in Full	Nationality	Country of Residence	Address of the Applicant	
Ms. S. PRATHIPA	INDIAN	INDIA	House No.	Assistant Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College
			Street	Sai Leo Nagar, West Tambaram
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	600 044

Name in Full	Nationality	Country of Residence	Address of the Applicant	
S. KIRUTHIKA	INDIAN	INDIA	House No.	Assistant Professor, Department of Information Technology, Wavoo Wajeeha Womens Arts And Science College
			Street	Tiruchendur Road,
			City	Kayalpatnam, Thoothukudi District
			State	Tamil Nadu
			Country	India
			Pin code	628 204

3B. CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]

Natural Person (✓)	Other than Natural Person		
	Small Entity ( )	Startup ( )	Others ( )

4. INVENTOR(S) [Please tick (✓) at the appropriate category]

Are all the inventor(s)	Yes (✓)	No ( )

4

07-Oct-2022/99065/202224105743O/Form 1

same as the applicant(s) named above?			
If "No", furnish the details of the inventor(s)			

Name in Full	Nationality	Country of Residence	Address of the Inventor	
Dr. K. LATHA	INDIAN	INDIA	House No.	Associate Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College
			Street	Sai Leo Nagar, West Tambaram
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	600 044

Name in Full	Nationality	Country of Residence	Address of the Inventor	
Ms. KAVITHA.D	INDIAN	INDIA	House No.	Assistant Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College
			Street	Sai Leo Nagar, West Tambaram
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	600 044

Name in Full	Nationality	Country of Residence	Address of the Inventor	
Ms. A. SHALI	INDIAN	INDIA	House No.	Assistant Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College
			Street	Sai Leo Nagar, West Tambaram
			City	Chennai

			State	Tamil Nadu
			Country	India
			Pin code	600 044
Name in Full	**Nationality**	**Country of Residence**	**Address of the Inventor**	
Mr. ANISH. T. P	INDIAN	INDIA	House No.	Assistant Professor, Department of Computer Science and Engineering, R.M.K College Of Engineering And Technology
			Street	R.S.M. Nagar, Puduvoyal, Gummidipoondi Taluk, Tiruvallur District
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	601 206.
Name in Full	**Nationality**	**Country of Residence**	**Address of the Inventor**	
Ms. JEEVITHA. D	INDIAN	INDIA	House No.	Assistant Professor, Department of Computer Science and Engineering, Jeppiaar Engineering College
			Street	Jeppiaar Nagar, Rajiv Gandhi Salai, Semmenchery
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	600 119
Name in Full	**Nationality**	**Country of Residence**	**Address of the Inventor**	
Ms. R. TAMILROJA	INDIAN	INDIA	House No.	Assistant Professor, Department of Computer Science and Engineering, Jeppiaar Engineering College

6

			Street	Jeppiaar Nagar, Rajiv Gandhi Salai, Semmenchery
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	600 119
Name in Full	**Nationality**	**Country of Residence**	**Address of the Inventor**	
Ms. FATHIMA MUBARAKKAA	INDIAN	INDIA	House No.	Assistant Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College
			Street	Sai Leo Nagar, West Tambaram
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	600 044
Name in Full	**Nationality**	**Country of Residence**	**Address of the Inventor**	
Dr. K. JAYASAKTHI VELMURUGAN	INDIAN	INDIA	House No.	Associate Professor, Department of Computer Science and Engineering, Jeppiaar Engineering College
			Street	Jeppiaar Nagar, Rajiv Gandhi Salai, Semmenchery
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	600 119
Name in Full	**Nationality**	**Country of Residence**	**Address of the Inventor**	
Ms. S. PRATHIPA	INDIAN	INDIA	House No.	Assistant Professor, Department of Computer Science and Engineering,

7

				Sri Sairam Engineering College
			Street	Sai Leo Nagar, West Tambaram
			City	Chennai
			State	Tamil Nadu
			Country	India
			Pin code	600 044
Name in Full	Nationality	Country of Residence	Address of the Inventor	
S. KIRUTHIKA	INDIAN	INDIA	House No.	Assistant Professor, Department of Information Technology, Wavoo Wajeeha Womens Arts And Science College
			Street	Tiruchendur Road,
			City	Kayalpatnam, Thoothukudi District
			State	Tamil Nadu
			Country	India
			Pin code	628 204

5. TITLE OF THE INVENTION: ARTIFICIAL INTELLIGENCE BASED SMART ROAD CLEANING ROBOT.

6. AUTHORISED REGISTERED PATENT AGENT(S)	IN/PA No.	
	Name	
	Mobile No.	
7. ADDRESS FOR SERVICE OF APPLICANT IN INDIA	Name	Dr. K. LATHA, Associate Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College
	Postal Address	
	Telephone No.	+ (91) – 99403 08527
	Mobile No.	
	Fax No.	
	E-mail ID	klathasn@gmail.com
	Name	Ms. D. KAVITHA, Assistant Professor, Department of

8

		Computer Science and Engineering
	Postal Address	Sai Leo Nagar, West Tambaram, Chennai - 600 044, Tamil Nadu.
	Telephone No.	
	Mobile No.	+ (91) – 99404 48272
	Fax No.	
	E-mail ID	kavithad.cse@sairam.edu.in
	Name	Ms. A. SHALI, Assistant Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College
	Postal Address	Sai Leo Nagar, West Tambaram, Chennai - 600 044, Tamil Nadu.
	Telephone No.	+ (91) – 96000 93489
	Mobile No.	
	Fax No.	
	E-mail ID	shali.cse@sairam.edu.in
	Name	Mr. ANISH.T.P., Assistant Professor, Department of Computer Science and Engineering, R.M.K College Of Engineering And Technology
	Postal Address	R.S.M. Nagar, Puduvoyal, Gummidipoondi Taluk, Tiruvallur District, Chennai – 601 206, Tamil Nadu.
	Telephone No.	
	Mobile No.	+ (91) – 99401 34506
	Fax No.	
	E-mail ID	anishcse@rmkcet.ac.in
	Name	Ms. JEEVITHA. D, Assistant Professor, Department of Computer Science and Engineering, Jeppiaar Engineering College
	Postal Address	Jeppiaar Nagar, Rajiv Gandhi Salai, Semmenchery,

9

		Chennai-600 119, Tamil Nadu.
Telephone No.		
Mobile No.		+ (91) - 72007 44011
Fax No.		
E-mail ID		jeevithadamotharanjpr@gmail.com
Name		Ms. R. TAMILROJA, Assistant Professor, Department of Computer Science and Engineering, Jeppiaar Engineering College
Postal Address		Jeppiaar Nagar, Rajiv Gandhi Salai, Semmenchery, Chennai-600 119, Tamil Nadu.
Telephone No.		
Mobile No.		+ (91) – 91598 94432
Fax No.		
E-mail ID		tamilrojajpr@gmail.com
Name		Ms. FATHIMA MUBARAKKAA, Assistant Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College
Postal Address		Sai Leo Nagar, West Tambaram, Chennai - 600 044, Tamil Nadu.
Telephone No.		
Mobile No.		+ (91) – 94878 33464
Fax No.		
E-mail ID		fathima.cse@sairam.edu.in
Name		Dr. K. JAYASAKTHI VELMURUGAN, Associate Professor, Department of Computer Science and Engineering, Jeppiaar Engineering Collcgc
Postal Address		Jeppiaar Nagar, Rajiv Gandhi Salai, Semmenchery, Chennai-600 119, Tamil Nadu.

1

	Telephone No.	
	Mobile No.	+ (91) - 99401 73552
	Fax No.	
	E-mail ID	jaisakthi21@gmail.com
	Name	Ms. S. PRATHIPA, Assistant Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College
	Postal Address	Sai Leo Nagar, West Tambaram, Chennai - 600 044, Tamil Nadu.
	Telephone No.	
	Mobile No.	+ (91) – 76679 92827
	Fax No.	
	E-mail ID	prathipa.cse@sairam.edu.in
	Name	S. KIRUTHIKA, Assistant Professor, Department of Information Technology, Wavoo Wajeeha Womens Arts And Science College
	Postal Address	Tiruchendur Road, Kayalpatnam-628204, Thoothukudi District, Tamil Nadu
	Telephone No.	
	Mobile No.	+ (91) – 86672 1015
	Fax No.	
	E-mail ID	kiruthikamanoj20@gmail.com

8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION

Country	Application Number	Filing date	Name of the applicant	Title of the invention	IPC (as classified in the convention country)

9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO-OPERATION TREATY (PCT)

International application number	International filing date

1

07-Oct-2022/99065/202241057430/Form 1

10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION	
Original (first) application No.	Date of filing of original (first) application

11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT	
Main application/patent No.	Date of filing of main application

12. DECLARATIONS

(i)   **Declaration by the inventor**

(**In case the applicant is an assignee:** the inventor may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period).

We, the above-named inventor is the true & first inventor for this invention and declare that the applicant herein is our assignee or legal representative.
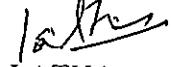
(a) Date: 07/10/22
(b) Signature:
(c) Name: Dr. K. LATHA

(a) Date: 07/10/22
(b) Signature:
(c) Name: Ms. D. KAVITHA

(a) Date: 07/10/22
(b) Signature:
(c) Name: Ms. A. SHALI

(a) Date: 07.10.22
(b) Signature:
(c) Name: Mr. ANISH.T.P
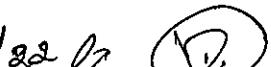
(a) Date: 07/10/22
(b) Signature:
(c) Name: Ms. JEEVITHA.D
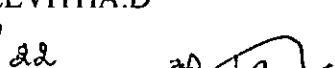
(a) Date: 07/10/22
(b) Signature:
(c) Name: Ms. R. TAMIL ROJA

1

(a) Date: 07/10/2022

(b) Signature:
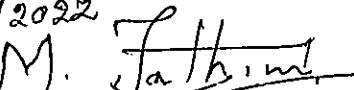
(c) Name: Ms. FATHIMA MUBARAKKAA

(a) Date: 07/10/22

(b) Signature:

(c) Name: Dr. K. JAYASAKTHI VELMURUGAN

(a) Date: 07.10.22

(b) Signature:

(c) Name: Ms. S. PRATHIPA

(a) Date: 07/10/22

(b) Signature:

(c) Name: S.KIRUTHIKA

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

~~(In case the applicant in India is different than the applicant in the convention country: the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period)~~

~~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 signatory~~

1

(iii) Declaration by the applicant(s)

We the applicant(s) hereby declare(s) that: -

    We are in possession of the above-mentioned invention.

    The provisional/complete specification relating to the invention is filled with this

Application.

☐ 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-NA

☐ There is no lawful ground of objection(s) to the grant of the Patent to me/us. - NA

    We are the true & first inventor(s).

    We are the assignee or legal representative of true & first inventor(s).

☐ The application or each of the applications, particulars of which are given in Paragraph-8, was the first application in convention country/countries in respect of my/our invention(s)-NA

    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 We derive the title.

☐ My/our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Paragraph-9- NA

    The application is divided out of my /our application particulars of which is given in Paragraph-10 and pray that this application may be treated as deemed to have been filed on DD/MM/YYYY under section 16 of the Act

☐ The said invention is an improvement in or modification of the invention particulars of which are given in Paragraph-11 – NA

13. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

(a) Form 2

Item	Details	Fee	Remarks
Complete/ provisional specification) #	No. of pages - One		
No. of Claim(s)	No. of claims Five and No. of pages – One		
Abstract	No. of pages - One		
No. of Drawing(s)	No. of drawings and No. of pages – Six and Four		

1

In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification under rule 13(4), the number of such pages filed with the provisional specification are required to be mentioned here.

(b) Complete specification (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).

(c) Sequence listing in electronic form

(d) Drawings (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).

(e) Priority document(s) or a request to retrieve the priority document(s) from DAS (Digital Access Service) if the applicant had already requested the office of first filing to make the priority document(s) available to DAS.

(f) Translation of priority document/Specification/International Search Report/International Preliminary Report on Patentability.

(g) Statement and Undertaking on Form 3

(h) Declaration of Inventorship on Form 5

(i)   Power   of   Authority

(j)...

Total fee Rs. 4,500.00 in bearing Demand Draft No. 213984   Dated 03.10.2022 drawn on Axis Bank, Nanganallur Branch.

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

Dated this Wednesday of   07th of October 2022

(a) Signature:
(b) Name: Dr. K. LATHA
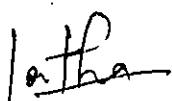
(a) Signature:
(b) Name: Ms. D. KAVITHA

(a) Signature:
(b) Name: Ms. A. SHALI

(a) Signature:
(b) Name: Mr. ANISH.T.P.

(a) Signature:

1
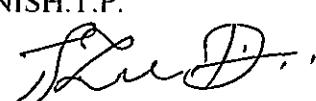
(b) Name: Ms. D. JEEVITHA

(a) Signature:
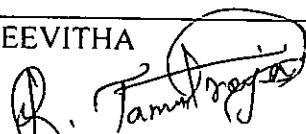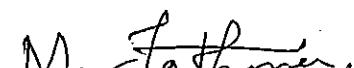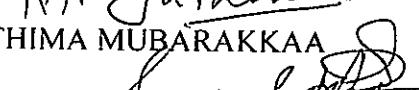
(b) Name: Ms. R.TAMILROJA

(a) Signature:

(b) Name: Ms. FATHIMA MUBARAKKAA

(a) Signature:

(b) Name: Dr. K. JAYASAKTHI VELMURUGAN

(a) Signature:

(b) Name: Ms. S.PRATHIPA

(a) Signature:

(b) Name: S.KIRUTHIKA

To,
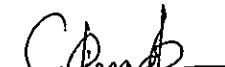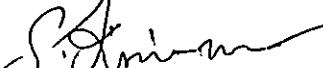
The Controller of Patents

The Patent Office, at Guindy, Chennai – 600 032.

Note: -

* Repeat boxes in case of more than one entry.

* To be signed by the applicant(s) or by authorized registered patent agent otherwise where mentioned.

* Tick (✓)/cross (x) whichever is applicable/not applicable in declaration in paragraph-12.

* Name of the inventor and applicant should be given in full, family name in the beginning.

* Strike out the portion which is/are not applicable.

* For fee: See First Schedule";

1

FORM 2
THE PATENT ACT 1970
(39 of 1970)
&
The Patents Rules, 2003
PROVISIONAL/COMPLETE SPECIFICATION
(See Section 10 and Rule 13)

COMPLETE

ARTIFICIAL INTELLIGENCE BASED SMART ROAD CLEANING ROBOT

1. APPLICANT

(a) NAME: Dr. K. LATHA
(b) NATIONALITY: INDIAN
(c) ADDRESS: Associate Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College, Sai Leo Nagar, West Tambaram, Chennai - 600 044, Tamil Nadu.

(a) NAME: Ms. D. KAVITHA
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College, Sai Leo Nagar, West Tambaram, Chennai - 600 044, Tamil Nadu.

(a) NAME: Ms. A. SHALI
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College, Sai Leo Nagar, West Tambaram, Chennai - 600 044, Tamil Nadu.

(a) NAME: Mr. ANISH
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Computer Science and Engineering, R.M.K College Of Engineering And Technology, R.S.M. Nagar, Puduvoyal, Gummidipoondi Taluk, Tiruvallur District, Chennai – 601 206, Tamil Nadu.

(a) NAME: Ms. D. JEEVITHA
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Computer Science and Engineering,
 Jeppiaar Engineering College, Jeppiaar Nagar, Rajiv Gandhi Salai,
 Semmenchery, Chennai-600 119, Tamil Nadu.

(a) NAME: Ms. TAMIL ROJA
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Computer Science and Engineering,
 Jeppiaar Engineering College, Jeppiaar Nagar, Rajiv Gandhi Salai,
 Semmenchery, Chennai-600 119, Tamil Nadu.

(a) NAME: Ms. FATHIMA MUBARAKKA
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Computer Science and Engineering,
 Sri Sairam Engineering College, Sai Leo Nagar, West Tambaram,
 Chennai - 600 044, Tamil Nadu.

(a) NAME: Dr. K. JAYASAKTHI VELMURUGAN
(b) NATIONALITY: INDIAN
(c) ADDRESS: Associate Professor, Department of Computer Science and Engineering,
 Jeppiaar Engineering College, Jeppiaar Nagar, Rajiv Gandhi Salai,
 Semmenchery, Chennai-600 119, Tamil Nadu.

(a) NAME: Ms. PRATHIBA
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Computer Science and Engineering,
 Sri Sairam Engineering College, Sai Leo Nagar, West Tambaram,
 Chennai - 600 044, Tamil Nadu.

(a) NAME: S. KIRUTHIKA
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Information Technology,
 Wavoo Wajeeha Womens Arts And Science College, Tiruchendur Road,
 Kayalpatnam-628204, Thoothukudi District, Tamil Nadu.

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

Field of Invention

A computerized flooring cleaner is a small robotics device that cleans floors in rooms and large offices while reducing human effort. Essentially, it works in the same way as a robot, eliminating human mistake and providing a cleaning activity with a lot more power. If we physically ease the floor, there's a chance that the operator may leave a few elements of the ground behind. This is also time-consuming and inconvenient to ease the ground due to the manual exertions involved. Furthermore, in large workplaces, the ground area is quite large, and the people in charge of cleaning it cannot clean it as effectively as they might. As a bonus, the robot arrives in that location. Furthermore, the robotic is tiny and portable. As a result, we may lift it and place it anywhere we want at home. In addition, when compared to manual labour, the robot is a very good pricing in the industry. The robotic's power, time-saving, and efficacy makes it a natural choice for cleaning the ground. The robotic is a clever system with its own personal

5

Background of Invention

Genius fed by computer intelligence so that it may carry out tasks in accordance with the algorithm design. The automobile's self-sustaining motion is governed by the excellent judgement controller that has been built. In every field of life, a robotic plays a crucial function.

10 It is used in companies, homes, and educational institutions. Mechanical management devices are used to control the flow or motion of substances or any other additives that may be present in the device. Actuators are utilised to regulate a mechanism that controls a segment of the tool at some point. Sensors are detecting machines that emit and receive signals, which are then used to collect a variety of environmental data, which are then given to the microcontroller for machine

15 identification. The robot's skill is the microcontroller, which is where the software is created and sensors are connected as inputs and actuators as outputs. The robotic is controlled by a variety of algorithms, including fuzzy controllers, computer learning-based procedures, and synthetic neural community-based algorithms. Using the environment charge obtained from the controller eliminates the mistake and allows travel from one nation to another.

20

25

30

Object of Invention

- Controller
- Camera
- Power supply
- Motor driver
- Motor

15

20

25

30

Summary of Invention

In general, there are two types of controllers: non-stop controllers and PID mainly based controllers. There have been a variety of cleaning procedures that have shown to be effective. However, these tactics were arduous, frightening, and necessitated rash attempts. Sweeps and mops are used by people to clean their homes. It became increasingly difficult for working individuals to find time for cleaning. The majority of humans sweep the floor with a hand-managed mop. As a result, there may be ways to minimize manpower and human effort. There are various obstacles we have while cleaning floors with the traditional method of using the mop. This is because the mop becomes contaminated with dirt that shows up as quickly as it is put to the surface.

The infection device then takes on a life of its own, as the mop becomes filthier and the mop water becomes more contaminated. Extremely soils are introduced to the mop because the mop water gets extra unclean. Then, as the mop becomes saturated with soils, it begins to spread them over the floor, from one-level floor to the next; as the cleaning solution becomes saturated with germs, bacteria, and other particular pollutants, it begins to lose its efficiency (effectiveness). Through a vacuum cleaning assembly, the automated floor cleaner is intelligently configured to smooth a designated region. The cleaner is cost-effective, convenient, and environmentally friendly, and it saves valuable time for any character.

The goal of this research is to create and construct a low-cost Arduino autonomous robot cleaner that cleans the floors of households or workplaces using a mapping technique. The aim is to use a sensor to identify any obstructions and send the output to a microprocessor, which will regulate the autonomous vacuum cleaner's movement. When utilising an autonomous vacuum cleaner, the user may switch it on and clean without the assistance of a human operator. In this work, wall mapping and random mapping are used to identify the most effective mapping technique for an autonomous robot cleaner. In addition, rather than utilising a standard button or switch to activate the robot, this idea uses speech recognition using Google Assistant.

This research intends to create an autonomous IoT-based vacuum cleaner that detects any obstacles and sends its output to a microcontroller that controls the robot's movement. With the freestanding vacuum cleaner, the user may utilise the remote control or voice recognition with

PATENT OFFICE CHENNAI 10/10/2022 12:22

5   Google Assistant on any Android phone to turn on the robot for cleaning. When this machine is turned on, it glides around the floor and effectively covers the whole space. Furthermore, this robot's suction force must be sufficient to gather dust, sand, human or pet hairs, and small pebbles that may be found indoors. As a result, a compact high-speed DC motor with a speed range of 3000rpm to 10000rpm is utilised to revolve a fan in order to generate heat.

10   Cleaning is an important task that must be completed in every location. This is both simple and tough at times. We occasionally appoint individuals to clean for us and pay them, and sometimes cleaning is necessary in regions where the presence of live beings is unsafe, therefore we cannot send living beings to every location. Some locations have huge floor spaces, necessitating the need of more than one person to clean, necessitating the use of a strategy to compensate for these

15   issues. A robot has emerged as a result of scientific advances, but it is still operated by humans. More technologies are required to bypass this manpower restriction.

Today's households are growing smarter and more automated. People benefit from home automation since it provides ease and frees up time. Domestic robots are making their way into people's homes and daily lives, although the market is still young and undeveloped. However,

20   increase is expected, and domestic robot usage is evolving. There are several robotic vacuum cleaners on the market, but only a handful of them can clean wet floors. The goal of this innovation is to create and implement a Vacuum Robot that is both autonomous and manual and can be controlled by a phone application called blynk. Vacuum Cleaner Robot is meant to make cleaning simpler than using a manual vacuum cleaner.

25

30

5

Detailed Description of Invention

In this invention, when the power supply is connected to the controller, it starts functioning. The camera captures all the movement of the device and sends the data to the controller for further processing. The motor driver is used for sensing the device and also for supplying the current for

10   processing all the data's.

A strength deliver unit (or PSU) converts mains AC to low-voltage managed DC strength for a computer's inner components. Power supplies in modern computers are almost always switchable. Some power supplies include a manual switch that selects the input voltage, while others have a switch that automatically adapts to the line voltage. It is not a microcontroller, nor

15   a single board computer, that contains SOC, (GPU, ROM, I / O Peripheral in it), DDR RAM memory, Ethernet port, USB host, Micro HDMI. RAM is the most important computer for your computers and the most important one for your computers. There has been a misunderstanding. A single board machine is Raspberry Pi.

Similar as a computerized camera, it catch light through a little glass on the front by means of a

20   little minuscule light finder lattice that is inherent to a sign detecting central processor (both CCD and CMOS). The L293D IC collects signals and transmits the relative signal to the motors from the microprocessor. There are two tension pins, one for drawing current for L293D operation and the other for adding power to the engines. A DC motor is an electric powered device kind that turns electric powered electricity into mechanical electricity. DC cars use direct

25   present day to translate this electricity into mechanical rotation.

30

Detailed Description of Drawings

(1) Figure (i) shows the Block Diagram

(2) Figure (ii) shows the Power Supply or Battery

A strength deliver unit (or PSU) converts mains AC to low-voltage managed DC strength for a computer's inner components. Power supplies in modern computers are almost always switchable. Some power supplies include a manual switch that selects the input voltage, while others have a switch that automatically adapts to the line voltage.

(3) Figure (iii) shows the Raspberry PI Module

It is not a microcontroller, nor a single board computer, that contains SOC, (GPU, ROM, I / O Peripheral in it), DDR RAM memory, Ethernet port, USB host, Micro HDMI. RAM is the most important computer for your computers and the most important one for your computers. There has been a misunderstanding. A single board machine is Raspberry Pi.

(4) Figure (iv) shows the Camera

Similar as a computerized camera, it catch light through a little glass on the front by means of a little minuscule light finder lattice that is inherent to a sign detecting central processor (both CCD and CMOS).

(5) Figure (v) shows the Motor Driver

The L293D IC collects signals and transmits the relative signal to the motors from the microprocessor. There are two tension pins, one for drawing current for L293D operation and the other for adding power to the engines.

(6) Figure (vi) shows the DC Motor

A DC motor is an electric powered device kind that turns electric powered electricity into mechanical electricity. DC cars use direct present day to translate this electricity into mechanical rotation.

Different Embodiment of Invention

i. It weakens and exhausts human power and effort. In cities, people have unpredictable and long operating times. In such a situation, a person would constantly look for ways to save time.

ii. This invention also has the benefit of assisting physically challenged people. This robotic's automatic mode aids persons who are physically impaired.

iii. Mounting is simple, and operation is simple. As a result, it is user-friendly.

iv. The evolved product is a crucial component of the robotics and floor-cleaning industries. The designed robot makes use of a scrubber board that is connected to a motor that wastes energy.

v. Furthermore, the method used might be quite successful. There's plenty of room for improvement and optimization until the best product has been developed.

5

Application of Invention

    a. The main goal of this task is to clean.

    b. With the assistance of this robot, we can save time.

    c. Capable of getting under fixtures and around corners.

10   d. It will very certainly be a product, and it has the potential to transform this industry. Simply said, it possesses enormous power.

    e. In addition, we will employ one vacuum pump instead of a scrubber in order to create a cost-effective and really energy-saving device with considerably less vibration and a lot more control over the robot.

15

20

25

Drawings

BLOCK DIAGRAM
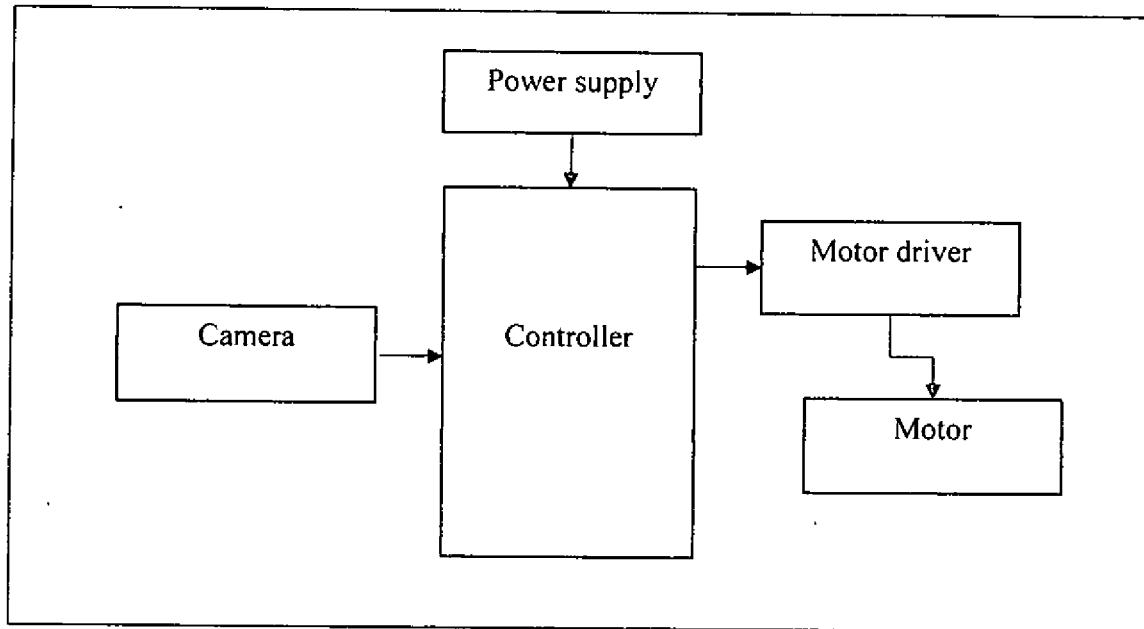
Figure (i) shows the Block Diagram

Figure (ii) shows the Power Supply or Battery

Figure (iii) shows the Raspberry PI Module

5
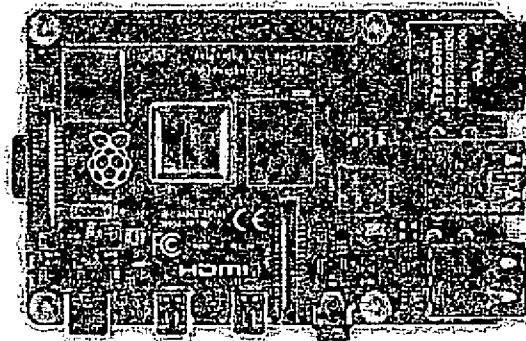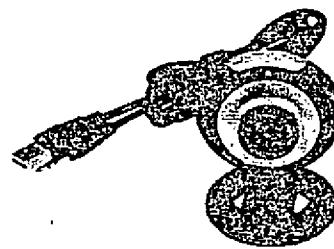
Figure (iv) shows the Camera

10

Figure (v) shows the Motor Driver
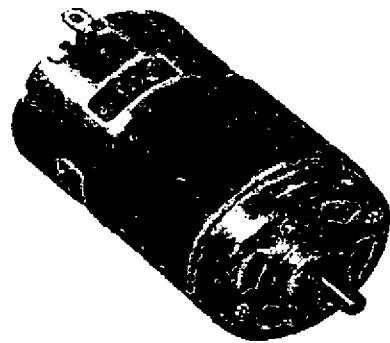
Figure (vi) shows the DC Motor

5

10

15

20

25

We Claim

The invention of Artificial Intelligence Based Smart Road Cleaning Robot comprises of:

1. Because of its small size, the robot may easily fit beneath any piece of furniture or a mattress. Furthermore, portability is readily available.

2. The robotic scrubber is now made up of microscopic plastic fibres.

3. Method for cleaner robot path planning in a covered zone.

4. The use of Genetic Algorithms.

5. A numerical comparison was undertaken to illustrate the efficiency and practicality of our technique and to validate the findings obtained.

(Dr. K. LATHA)   (Ms. D. KAVITHA)   (Ms. A. SHALI)

(Mr. ANISH.T.P)   (Ms. JEEVITHA.D)   (Ms. R. TAMILROJA)

(Ms. FATHIMA MUBARAKKAA)   (Dr. K. JAYASAKTHI VELMURUGAN)

(Ms. S. PRATHIPA)   (S. KIRUTHIKA)

07-Oct-2022/99065/202241057430/Form 2(Title Page)

Abstract

The mechanical is a sophisticated structure with its own Virtuoso taken care of with computer trustworthiness, allowing it to finish the work in accordance with the calculation plan. The upside judgement regulator, which is intended to keep the vehicle going, is used to direct one's own movement. The smart street cleaning sweeper machine is propelled by man-made reasoning and an approach involving the street cleaning sweeper machine.The most recent innovation is more related to the intelligent cleaning sweeper machine, which is controlled by artificial reasoning and process boundaries and distinguishable to a sort of intelligent cleaning robot in light of cutting-edge method arranging strategy and its flawless approach.This is also identified using AI techniques and image processing sources.Furthermore, wherein the garbage container includes a repository gulf that is open to the brush chamber to the extent that residue is cleared by turning the brush gathering, is moved through the brush chamber via pivot of the brush gathering, and is moved into the flotsam and jetsam repository through the container bay, which is immediately connected to the brush chamber, and wherein a tension machine for independently moving the brush gathering is included.

5

10

15

20

25

07-Oct-2022/99065/202241057430/Form 2(Title Page)

FORM 9
THE PATENT ACT, 1970
(39 of 1970)
&
The Patents Rules, 2003
REQUEST FOR PUBLICATION
[See Section 11[2]; rule 24A]

710011867

1. Name, Address and Nationality of the Applicant

(a) NAME: Dr. K. LATHA
(b) NATIONALITY: INDIAN
(c) ADDRESS: Associate Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College, Sai Leo Nagar, West Tambaram, Chennai - 600 044, Tamil Nadu.

(a) NAME: Ms. D. KAVITHA
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College, Sai Leo Nagar, West Tambaram, Chennai - 600 044, Tamil Nadu.

(a) NAME: Ms. A. SHALI
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Computer Science and Engineering, Sri Sairam Engineering College, Sai Leo Nagar, West Tambaram, Chennai - 600 044, Tamil Nadu.

(a) NAME: Mr. ANISH. T. P
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Computer Science and Engineering, R.M.K College Of Engineering And Technology, R.S.M. Nagar, Puduvoyal, Gummidipoondi Taluk, Tiruvallur District, Chennai – 601 206, Tamil Nadu.

(a) NAME: Ms. JEEVITHA. D
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Computer Science and Engineering, Jeppiaar Engineering College, Jeppiaar Nagar, Rajiv Gandhi Salai, Semmenchery, Chennai-600 119, Tamil Nadu.

(a) NAME: Ms. R. TAMILROJA
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Computer Science and Engineering, Jeppiaar Engineering College, Jeppiaar Nagar, Rajiv Gandhi Salai, Semmenchery, Chennai-600 119, Tamil Nadu.

(a) NAME: Ms. FATHIMA MUBARAKKAA
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Computer Science and Engineering,
Sri Sairam Engineering College, Sai Leo Nagar, West Tambaram,
Chennai - 600 044, Tamil Nadu.

(a) NAME: Dr. K. JAYASAKTHI VELMURUGAN
(b) NATIONALITY: INDIAN
(c) ADDRESS: Associate Professor, Department of Computer Science and Engineering,
Jeppiaar Engineering College, Jeppiaar Nagar, Rajiv Gandhi Salai,
Semmenchery, Chennai-600 119, Tamil Nadu.

(a) NAME: Ms. S. PRATHIPA
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Computer Science and Engineering,
Sri Sairam Engineering College, Sai Leo Nagar, West Tambaram,
Chennai - 600 044, Tamil Nadu.

(a) NAME: S. KIRUTHIKA
(b) NATIONALITY: INDIAN
(c) ADDRESS: Assistant Professor, Department of Information Technology,
Wavoo Wajeeha Womens Arts And Science College, Tiruchendur Road,
Kayalpatnam-628204, Thoothukudi District, Tamil Nadu.

2. To be Signed by the Applicant Or his authorized registered Patent Agent	hereby request for early publication of our application for Patent No......................dated .... under section 11A(2) of the Act. Dated this ....day of ....20.

3. Name of the Natural Person Has signed

(a) Signature:

(b) Name: Dr. K. LATHA
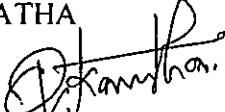
(a) Signature:

(b) Name: Ms. D. KAVITHA

(a) Signature:

(b) Name: Ms. A. SHALI

(a) Signature:

(b) Name: Mr. ANISH. T. P.

07-Oct-2022/99065/202241057430/Form 9
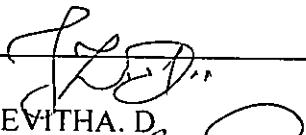
(a) Signature:
(b) Name: Ms. JEEVITHA. D

(a) Signature:
(b) Name: Ms. R.TAMILROJA
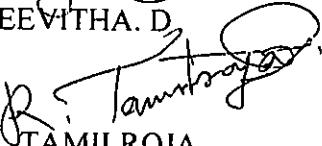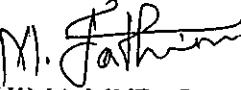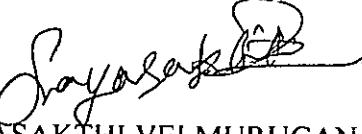
(a) Signature:
(b) Name: Ms. FATHIMA MUBARAKKAA

(a) Signature:
(b) Name: Dr. K. JAYASAKTHI VELMURUGAN

(a) Signature:
(b) Name: Ms. S. PRATHIPA

(a) Signature:
(b) Name: S.KIRUTHIKA

To
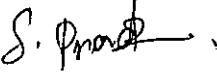
The Controller of Patents,
The Patent Office,
At Guindy, Chennai 600 032.

Note:- For Fee: See First Schedule