ST. ANNE'S COLLEGE OF ENGINEERING AND TECHNOLOGY

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ANGUCHETTYPALAYAM, PANRUTI – 607 106.

3.2.1 Total Number of patents published and awarded during the last five years

Year	2021-2022	2020-2021	2019-2020	2018-2019	2017-2018
Number	3	1	-	-	-

Dr. R. AROKIADASS, M.E., Ph.D.,
Principal,
St. Anne's College of Engineering & Technology,
ANGUCHETTYPALAYAM,
Siruvathur-(Post), Panruti-(T.k),
Cuddalore-(Dist), Pin: 607 110.

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ANGUCHETTYPALAYAM, PANRUTI – 607 106.

3.2.1 Institution has created an ecosystem for innovations and has initiatives for creation and transfer of knowledge (patents filed, published, incubation center facilities in the HEI to be considered)

The following faculty members have filed the patent and published in the academic year 2021-2022

S.NO	NAME OF THE FACULTY	TITLE OF THE INVENTION	PUBLICATION DATE
1	Dr. S. Anita	Computer Operator Name with Location, Tracking New System	11.02.2022
2	Sr. A. Annai Theresa	Asymmetrical Cascaded 41-Level Inverter with Minimum Components	11.03.2022
3	Dr. S. Anita	A System for Analysing single Photon Emission Computed Tomography(SPECT) Images and a Method Thereof	15.04.2022

Dr. R. AROKIADASS, M.E., Ph.D.,
Principal,
St. Anne's College of Engineering & Technology,
ANGUCHETTYPALAYAM,
Siruvat[illegible], Panruti (T.k),
Cuddalore (Dist), Pin: 607 110.

पेटेंट कार्यालय
शासकीय जर्नल

OFFICIAL JOURNAL
OF
THE PATENT OFFICE

निर्गमन सं. 06/2022	शुक्रवार	दिनांक: 11/02/2022
ISSUE NO. 06/2022	FRIDAY	DATE: 11/02/2022

पेटेंट कार्यालय का एक प्रकाशन
PUBLICATION OF THE PATENT OFFICE

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :03/02/2022

(21) Application No.202241005961 A
(43) Publication Date : 11/02/2022

(54) Title of the invention : COMPUTER OPERATOR NAME WITH LOCATION, TRACKING NEW SYSTEM

(51) International classification	:H04L0029060000, G06Q0050260000, G09B0019000000, G06F0016951000, G06F0016953500
(86) International Application No Filing Date	:PCT// :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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2)G Prabaharan |Assistant Professor | Department of Computer Science and Engineering | B V Raju Institute of Technology | Medak | Telangana
3)S. Anita | Associate Professor | Department of Electronics and Communication Engineering | St. Anne's College of Engineering and Technology | Cuddalore
4)Mohammad Malik Mubeen S | Assistant Professor | Department of Electrical and Electronics Engineering | M.A.M. School of Engineering | Tiruchirappalli.
5)Shakthi V | UG Scholar | Department of Computer Science and Engineering | Adhiparasakthi Engineering College | Melmaruvathur
6)Dr. Gowthul Alam M M | Associate Professor | Department of Computer Science and Engineering | Presidency University | Bengaluru | Karnataka
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
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2)G Prabaharan |Assistant Professor | Department of Computer Science and Engineering | B V Raju Institute of Technology | Medak | Telangana
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6)Dr. Gowthul Alam M M | Associate Professor | Department of Computer Science and Engineering | Presidency University | Bengaluru | Karnataka
Address of Applicant :Dr. Gowthul Alam M M, Associate Professor, Department of Computer Science and Engineering, Presidency University, Bengaluru, Karnataka, India. ---------- ----------

(57) Abstract :
This invention is related to the search field of the Internet. Here we describe a new system, in which we see the problem when a user uses the Internet and many cybercrime related incidents occur with it. Here he feels himself insecure. Then this new system works for security. The identity of the unknown person becomes public. It is clear from the description as per the drawing. The new technology of registration of IP address reflects the national identity of the person. In this way we see that many problems of the Internet are solved by a new system. Therefore, this new idea should be accepted by all countries.

No. of Pages : 14 No. of Claims : 5

patent 2.

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)

Application Details

APPLICATION NUMBER	202241010084
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	25/02/2022
APPLICANT NAME	**A. ANNAI THERESA**
TITLE OF INVENTION	ASYMMETRICAL CASCADED 41 LEVEL INVERTER WITH MINIMUM COMPONENTS
FIELD OF INVENTION	ELECTRICAL
E-MAIL (As Per Record)	
ADDITIONAL-EMAIL (As Per Record)	srtheresasat@gmail.com
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	25/02/2022
PUBLICATION DATE (U/S 11A)	11/03/2022
REPLY TO FER DATE	30/09/2022

Application Status

APPLICATION STATUS	**Reply Filed. Application in amended examination**

View Documents

Filed ✓ → RQ Filed ✓ → Published ✓ → Under Examination ✓ → Disposed

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

700255347

CBR: 7453
DATE: 25/02/2022
Amt: 2750/-
NSK
25.2.22

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

1.	Name, address and nationality of applicant(s).	I A. Annai Theresa, St. Anne's College of Engineering and Technology, Anguchetty Palayam, Siruvathur Po, Panruti Tk. Cuddalore Dt. Tamilnadu, India, hereby request for early Publication of my/our Patent application No. dated..... under section 11A(2) of the Act. Dated this.....day of.....2022.....
2.	To be signed by the applicant or authorized registered patent agent.	Signature..... A. Annai Theresa
3.	Name of the natural person who has signed.	

To

The Controller of Patents,
The Patent Office, At
Chennai

Note. — For fee: *See* First Schedule.

TITLE OF THE INVENTION

Asymmetrical cascaded 41 level inverter with minimum components.

FIELD OF THE INVENTION

The present invention relates to the field of power electronic devices, particularly to inverters. More particularly, the present invention relates to an asymmetrical cascaded multilevel (41 level) inverter with minimum components and low total harmonic distortion for operating electrical loads.

BACKGROUND OF THE INVENTION

[0001] The inverter is becoming inevitable for both residential and commercial purposes in modern society. That too nowadays the sine wave inverter is getting more popular because of its better quality and performance. Because of the better quality and performance the loads can be operated in a smooth and safer way.

[0002] People are more interested in buying sine wave inverters for residential purposes also as the residential houses have many electrical and electronic gadgets. So the need for sine wave inverters is increasing in all areas. To develop the sinewave inverters, the state of art technologies are used these days. The multilevel inverter is one of the best state of art technologies. These days many industries and researchers are actively involved in the development of this technology.

[0003] Multilevel Inverter (MLI) finds its implementations in a wide area. Multilevel Inverter at present is a fascinating concept in the field of industrial applications. Its simple structure and facility to increase or decrease the voltage by connecting multiple H- Bridge cells in cascaded manner are the predominant advantages.

[0004] We know that the prevailing power electronic converters are capable of producing an output voltage that ranges between two voltage levels alone. When these two level inverters are applied for higher range power applications, it is difficult to operate them at high frequency range because of its notable limitations like switching losses and high rating of the devices. So, with the two level inverter, it is impossible to bring out the preferred output.

I **CLAIM:**

I. An asymmetrical cascaded multilevel (41 level) inverter system (200) comprising: a converter comprising:

a main circuit (120);

a control circuit (122);

a series combination of power switches (101,102,103,104,105) and DC sources (110,111,112,113,114);

a parallel combination of clamping diodes (115,116,117,118,119) with a series combination of power switches (IOI, 102,103,104, 105) and DC sources (110,111,112,113,114); and

a H- Bridge circuit (121) with power switches (106,107,108,109),

wherein the main circuit (120) is configured with the power switches (IOI, 102,103,104,105) in series with the asymmetrical DC sources (110,111,112,113,114) and each of the series combination of power switch (IOI) and DC source (110) is connected in parallel with a clamping diode (115) and the circuit with this combination is connected to a H- Bridge circuit (121),

wherein 4 power switches (106,107,108,109) are configured in the H- Bridge circuit (121),

wherein the control circuit is configured with a control scheme wherein a gate pulse is generated by using phase displacement pulse width modulation (PDPWM) technique and the generated gate pulses (301,302,303,304,305) are given to the main circuit power switches (101,102,103,104,105) and appropriate gate pulses (401,402) are given to the H- Bridge power switches (106,107,108, 109) in the main circuit,

wherein a stepped DC voltage waveform (501) is generated by the circuit of combination of 5 power switches (101,102,103,104,105), 5 DC sources (110,111,112,113,114) and 5 clamping diodes (115,116,117,118,119), and

wherein the 41 level stepped output voltage (601,701,801) and output current (602,702,802) is obtained with reduced components and low total harrnonic distortion value.

2. The asymmetrical cascaded multilevel (41 level) inverter system (200) as claimed in claim 1, wherein the controlled gate pulses (301,302,303,304,305) switching states of the power switches (101,102,103,104,105).

3. The asymmetrical cascaded multilevel (41 level) inverter system as claimed in claim 1, wherein the asymmetrical DC supply voltage sources (110,111,112,113,114) are set with different voltage levels so that the obtained output voltage level (600,700,800) is higher.

4. The asymmetrical cascaded multilevel (41 level) inverter system as claimed in claim 1, wherein the H- Bridge circuit (121) generates a 41 level stepped AC wave (600,700,800) which is closer to a sine wave by configuration of the power switches (106,107,108,109) in the H-Bridge.

5. The asymmetrical cascaded multilevel (41 level) inverter system as claimed in claim 1, wherein the THD value (900) is 1.54% due to the controlled gate pulses (301,302,303,304,305) generated by PDPWM technique.

6. The asymmetrical cascaded multilevel (41 level) inverter system as claimed in claim 1, wherein the output voltage (601) and output current (602) are in phase with each other for resistive load.

7. The asymmetrical cascaded multilevel (41 level) inverter system as claimed in claim 1, wherein the output current (702) lags the output voltage (701) for inductive load.

8. The asymmetrical cascaded multilevel (41 level) inverter system as claimed in claim 1, wherein the output current (802) leads the output voltage (801) for capacitive load.

Dated this 25th day of February 2022

sign

A. ANNAI THERESA

patent 1

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :25/03/2022

(21) Application No.202241017033 A
(43) Publication Date : 15/04/2022

(54) Title of the invention : A SYSTEM FOR ANALYSING SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY (SPECT) IMAGES AND A METHOD THEREOF

(51) International classification	:G06T0015080000, A61B0006030000, G06K0009320000, G06T0011000000, G06T0007000000
(86) International Application No Filing Date	:PCT// / :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)**Name of Applicant :**
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Name of Applicant : NA
Address of Applicant : NA
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Address of Applicant :St. Anne's College of Engineering and Technology, Anguchettypalayam, Panruti, Cuddalore Dt 607106 Tamil Nadu, India ---------- ----------
2)PRIYA P. Aruna
Address of Applicant :Department of ECE, SRM Institute of Science and Technology, Kattankulathur, Chennai 603203, Tamil Nadu, India ---------- ----------

(57) Abstract :
ABSTRACT A SYSTEM FOR ANALYSING SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY (SPECT) IMAGES AND A METHOD THEREOF The present invention relates to the field of image processing and discloses a system (100) and method (200) for analysing SPECT images. The system (100) includes an input module (104) to receive at least one 3D SPECT image of a subject; a slice selector module (106) to select a pre-determined number of volume rendering image slices from 91 2D transaxial image slices of the received SPECT image; a processing module (108) to pre-process and segment the received slices based on a pre-determined set of processing rules stored in a repository (102), to identify volume of interest (VOI) in the image slices; an extractor module (110) to extract volume of pixels from the VOI of the volume rendering image slices; a determining module (112) to determine a degree of abnormality in the condition of the subject and update a dataset stored in the repository (102) with received voxels and outcome value.

No. of Pages : 28 No. of Claims : 7

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

1. APPLICANT'S 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)

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			State	Tamil Nadu
			Country	INDIA
			Pin Code	603203

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

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

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

Are all the inventor(s) same as the applicant(s) named above?	Yes ( )	No (✓)

Name in Full	Nationality	Country of Residence	Address of the Inventor	
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			Pin Code	607106
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			Street	Kattankulathur
			City	Chennai
			State	Tamil Nadu
			Country	INDIA
			Pin Code	603203

5. TITLE OF THE INVENTION:

ANALYSIS OF VOLUME RENDERING SPECT IMAGE SLICES FOR DIAGNOSIS OF EARLY STAGE PARKINSON'S DISEASE USING DEEP LEARNING TECHNIQUES

6. AUTHORISED REGISTERED PATENT AGENT(S)		
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	Mobile No.	9823057535
	Fax. No.	0222650159
	E-mail ID	dewan@rkdewanmail.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

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 Number	Date of filing of main application
12. DECLARATIONS	

(i) Declaration by the inventor(s)

(In case the applicant is an assignee: the inventor(s) 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).

I / We, the above named inventor(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 : 23.03.2022
(b) Signature : 
(c) Name : S. Anita

(a) Date :
(b) Signature :
(c) Name : PRIYA P. Aruna

☒(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 :
(c) Name :

(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.

☒ 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(s) to the grant of the Patent to me/ us.

☒ I am /We are the true & first inventor(s).

☑ I am /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).

☒ 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.

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

☒ 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 _____. under section 16 of the Act.

☒ The said invention is an improvement in or modification of the invention particulars of which are given in Para-11.

13.FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

a. Form 2

Item	Details	Fee	Remarks
Complete Specification	No.of pages		
No. of Claim(s)	No. of claims and No. of pages		
Abstract	No.of pages		
No. of Drawing(s)	No. of drawings and No. of pages		

☑ Complete specification (in conformation with the international application) / as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies), No. of pages _____, No. of claims_____.

☒ Sequence listing in electronic form

☑ Drawings (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies), No. of sheets _____

☒ 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.

☒ Translation of priority document/Specification/International Search Report/International Preliminary Report

on Patentability.

☑ Statement and Undertaking on Form 3

☑ Declaration of inventorship on Form 5

☑ Power of Authority

Total fee ₹_____ in cash/Banker's Cheque /Bank Draft bearing No. _____ Date _____. on _____ Bank.

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 18th day of October 2021

For: **SRM INSTITUTE OF SCIENCE AND TECHNOLOGY**

_____

MOHAN RAJKUMAR DEWAN, IN/PA - 25
of R.K.DEWAN & CO.
Authorized Agent of Applicant

To,
The Controller of Patents
The Indian Patent Office, Chennai

3.2.1 Institution has created an ecosystem for innovations and has initiatives for creation and transfer of knowledge (patents filed, published, incubation centre facilities in the HEI to be considered)

The following faculty members have filed the patent and published in the academic year 2020-2021

S.NO	NAME OF THE FACULTY	TITLE OF THE INVENTION	PUBLICATION DATE
1	Sr. A. Annai Theresa	Smart Public Transport Disinfection and Sterilization System	13.05.2021

Dr. R. NIROKLADASS, M.E., Ph.D.,
Principal,
St. Anne's College of Engineering & Technology,
ANGUCHETTYPALAYAM,
Sirunathur (Post), Panruti (T.K.),
Cuddalore (Dist), Pin: 607 110.

Australian Government

IP Australia

CERTIFICATE OF GRANT

INNOVATION PATENT

Patent number: 2021101212

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 28th day of April 2021

Commissioner of Patents

COMMONWEALTH OF AUSTRALIA
AUSTRALIA
PATENT OFFICE

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.

(12) INNOVATION PATENT
(19) AUSTRALIAN PATENT OFFICE

(11) Application No. AU 2021101212 A4

(54) Title
SMART PUBLIC TRANSPORT DISINFECTION AND STERILIZATION SYSTEM

(51) International Patent Classification(s)
A61L 9/20 (2006.01)
A61L 2/10 (2006.01)
A61L 2/24 (2006.01)
A61L 2/26 (2006.01)
B01D 46/40 (2006.01)

(21) Application No: **2021101212**

(22) Date of Filing: **2021.03.08**

(45) Publication Date: **2021.05.13**
(45) Publication Journal Date: **2021.05.13**
(45) Granted Journal Date: **2021.05.13**

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(72) Inventor(s)
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(74) Agent / Attorney
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202110121 2 08 Mar 2021

ABSTRACT

"SMART PUBLIC TRANSPORT DISINFECTION AND STERILIZATION SYSTEM"

Exemplary aspects of the present disclosure directed towards the Smart Public Transport Disinfection and Sterilization System. The disinfection/sterilization process generally comprises Mist-spraying of chemicals and illuminating with UV-Light. The invention presented here consists of Thermoelectric-Peltier modules 101, act as pseudo cooling and heating element. If motion-sensor 107 detects no human presences then, microcontroller 103 turns on UV-Light 105 and opens the hot air outlet 101a of Thermoelectric-Peltier modules 101 & Ozone Generator 101c. Simultaneously, Mist-sprayer device 106 spray the chemical on the surface exactly where passengers seated. Passenger occupancy is monitored by camera 112 with relevant Machine learning algorithms. Blowers 109 sucks the air from the passenger cabin and makes it flow through HEPA filter 109a and over Thermoelectric-Peltier modules 101. When moisture-sensor 107 detects the dry surface, the ESP32 microcontroller 103 stops the hot air went 101a, and open the other side of Thermoelectric Peltier modules 101b. The cold air sent through the vent 101b of Thermoelectric Peltier modules 101, eventually cools the entire cabin in minutes, making the passenger cabin disinfect and sterile.

1. TITLE OF THE INVENTION:

Smart Public Transport Disinfection And Sterilization System

2. PREAMBLE TO THE DESCRIPTION

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

3. DESCRIPTION

TECHNICAL FIELD

[0001] The present disclosure generally relates to public health and hygiene, particularly about sanitization and the transportation system's disinfection with the machine learning algorithm's help.

BACKGROUND

[0002] Preventive measure is the best sort of vector to avoid the spread of any viruses. The preventative step may include sanitization or disinfection, or both. In the transport sector, wherein the step-in and step-out of people with or without any infection symptoms may pose a severe spread of infection. The transportation medium, particularly in developing countries like India, mostly relays on Auto-Rikshaws, Cars, Buses, and Trains. Adhering to policymakers' decision, all the means of transport must get sanitized at the End of the day leading to the spread of infections. Due to the lack of a proper mechanism for quick sanitization and disinfection during commuter's absence intervals, the End of the day schema was implemented. This schema won't give fruitfulness because of the step-in of several commuters per day who are either asymptotic or in good health.

[0003] The term sanitization and disinfection carry the same meaning in-general, but both differ by many dissimilarities as per medical terminology. Though several systems and mechanisms are in place for either sanitize or disinfect, there is a lack of understanding in making the area sanitize or disinfect and more significantly in the transport sector.

[0004] Numerous prior arts have made attempts to automate the sanitization and disinfection with multiple prototyping but haven't achieved a more desirable feature in a single unit and rapid disseminating system for the transportation sector. Moreover, spraying the disinfecting liquid where there is no contamination or no space utilization leads to mear waste of liquid and consumes time and energy.

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