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(57) Abstract :

This invention presents a Safety Network System for Bus Ride Stations, leveraging IoT technology to transform traditional stations into intelligent, data-driven hubs. The system includes real-time bus tracking, passenger information dissemination, and dynamic scheduling. It enhances safety with surveillance and emergency alert systems, automated access control, and environmental monitoring for air quality and temperature. Moreover, the invention optimizes energy usage through the automation of station functions. This comprehensive approach improves passenger satisfaction, security, and sustainability, making urban public transportation more efficient and attractive. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 21 No. of Claims : 10

FORM 1				(FOR OFFICE USE ONLY)	
THE PATENTS ACT 1970 (39 of 1970) and THE PATENTS RULES, 2003 APPLICATION FOR GRANT OF PATENT					
(See section 7, 54 and 135 and sub-rule (1) of rule 20)					
			Application No.		
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			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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3B. CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]						
Natural Person (✓)		Other than Natural Person				
		Small Entity ()	Startup ()	Others ()		
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Are all the inventor(s) same as the applicant(s) named above?		Yes (✓)			No ()	
If "No", furnish the details of the inventor(s)						
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Same as Applicant						
5. TITLE OF THE INVENTION						
"A SAFETY NETWORK SYSTEM USING IOT TECHNOLOGY FOR AUTOMATIC AND REMOTE CONTROLLING OF BUS RIDE STATIONS"						
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8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN-CONVENTION						
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Country	Application	Filing date	Name of the	Title of the	IPC (as classified in the	

	Number		applicant	invention	convention country)
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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(s)					
<p>(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).</p> <p>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.</p> <p>(a) Date 30/12/2023</p>					
(b) Name			(c) Signature		
1. Dr. G.Nirmala 2. Dr. Sammy. F 3. Mrs. A.Swathi 4. Dr. K. Venkataraman 5. Dr. V. Elizabeth Jesi 6. Dr. G. Kharmega Sundararaj					
(ii) Declaration by the applicant(s) in the convention country					
<p>(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)</p> <p>I/We, the applicant(s) in the convention country declare that the applicant(s) herein-</p>					

~~is/are my/our assignee or legal representative.~~

~~(a) Date~~

~~(b) Signature(s)~~

~~(c) Name(s) of the signatory~~

(iii) Declaration by the applicant(s)

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

- I am/ We are in possession of the above-mentioned invention.
- The ~~provisional/complete~~ specification relating to the invention is filed with this application.
- ~~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 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.~~

13. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

(a) Form 2

Item	Details	Fee	Remarks
Complete/ Provisional specification) #	No. of pages: 17		
No. of Claim(s)	No. of claims: 10 No. of pages: 01		
Abstract	No. of pages: 01		
No. of Drawing(s)	No. of drawings: 02 No. of pages: 02		

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 ₹.....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 slated herein are correct and I/We request that a patent may be granted to me/us for the said invention.

Dated this 30th day of December 2023

Signature: 

Name: Dr. G.Nirmala et. al.

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

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”;

FORM 2

THE PATENTS ACT, 1970

(39 of 1970)

&

The Patent Rules, 2003

5

COMPLETE SPECIFICATION

(See section 10 and rule 13)

10

TITLE OF THE INVENTION

“A SAFETY NETWORK SYSTEM USING IOT TECHNOLOGY FOR
AUTOMATIC AND REMOTE CONTROLLING OF BUS RIDE STATIONS”

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4. Dr. K. Venkataraman	Indian	Associate Professor, Department of Mechanical Engineering, Sri Sairam Engineering College, West Tambaram, Chennai, Tamil Nadu, India

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The following specification particularly describes the nature of the invention and the manner in which it is performed:

FIELD OF THE INVENTION

5 [001] The proposed system is at the intersection of transportation and Internet of Things (IoT) technology, aiming to revolutionize the safety and efficiency of bus ride stations. The field of invention primarily falls under the realm of intelligent transportation systems.

10 [002] This innovative system leverages IoT sensors and devices to create a Safety Network System for Bus Ride Stations. It enables automatic monitoring, control, and management of various aspects of bus stations. The system's key focus areas include real-time tracking of buses, passenger safety, and enhanced operational efficiency.

15 [003] By employing IoT technology, it allows for remote monitoring of passenger flow, bus arrivals, and departures. Additionally, the system incorporates environmental sensors to ensure air quality and temperature control. It can also provide safety features such as emergency alerts, surveillance, and automated access control.

BACKGROUND OF THE INVENTION

20 [004] The following description provides the information that may be useful in understanding the present invention. It is not an admission that any of the information provided herein is prior art or relevant to the presently claimed invention, or that any publication specifically or implicitly referenced is prior art. Further, the approaches described in this section are approaches that could be pursued, but not necessarily approaches that have been previously conceived or pursued. Therefore, unless otherwise indicated, it should not be assumed

that any of the approaches described in this section qualify as prior art merely by virtue of their inclusion in this section.

[005] The proposed invention is a cutting-edge system designed to address the escalating issue of deep fake videos proliferating on social media platforms, presenting a significant threat to the integrity of digital information and the potential for misinformation and deception. Harnessing the power of machine learning, this innovative technology offers a comprehensive solution for detecting deep fake videos in real-time, thereby fortifying the security and trustworthiness of online content.

[006] The proposed invention, a Safety Network System Using IoT Technology for Automatic and Remote Controlling of Bus Ride Stations, represents a groundbreaking advancement in the realm of transportation infrastructure and public safety. This innovative system has emerged as a response to the growing challenges and demands associated with modern urban transportation networks. Over the years, the proliferation of cities and the corresponding increase in population density have placed tremendous pressure on public transportation systems. As a result, there has been a pressing need to develop novel solutions that enhance the efficiency, safety, and overall quality of bus ride stations.

[007] Traditional bus ride stations have long been the backbone of urban transportation networks, serving as pivotal points where passengers embark and disembark from buses. However, these stations have often struggled to keep pace with the evolving needs of commuters. Issues such as overcrowding, inefficient scheduling, and safety concerns have plagued these stations, leading to a suboptimal travel experience for passengers.

[008] In recent years, the advent of IoT technology has ushered in a new era of connectivity and data-driven decision-making across various industries. This technology has enabled the creation of intelligent systems capable of monitoring and controlling a wide array of parameters in real-time. Recognizing the potential of IoT in revolutionizing transportation, the proposed invention aims to harness this technology to transform bus ride stations into smart, interconnected hubs that address the longstanding challenges of the public transportation sector.

[009] The essence of this invention lies in its ability to seamlessly integrate IoT sensors, devices, and data analytics into the fabric of bus ride stations. By doing so, it provides a multifaceted approach to enhancing the overall quality of the passenger experience and optimizing station operations. One of the central features of the system is the real-time tracking of buses. Through the use of GPS and other location-based technologies, passengers can access accurate information about bus arrivals and departures, reducing the uncertainty and waiting times often associated with public transportation.

[010] Furthermore, the Safety Network System encompasses an array of safety features designed to protect both passengers and station infrastructure. Emergency alerts and surveillance capabilities enable swift responses to unforeseen incidents, improving passenger security. Environmental sensors monitor air quality and temperature, ensuring a comfortable and healthy environment for commuters and staff alike.

[011] The IoT technology embedded in this system also allows for automated access control, streamlining the boarding process and reducing the risk of unauthorized entry or security breaches. By automating various aspects of

station management, including lighting, ventilation, and signage, the system enhances operational efficiency while reducing energy consumption and maintenance costs.

[012] The origins of this proposed invention can be traced back to a series of evolving challenges in the field of urban transportation. As cities worldwide experience rapid population growth, urban planners and transportation authorities have been grappling with the task of maintaining efficient, safe, and sustainable public transportation systems. Conventional bus ride stations, while serving as crucial nodes in these networks, have often struggled to keep pace with the demands of modern urban life.

[013] Overcrowding at stations, long wait times, irregular bus schedules, and safety concerns have become common issues faced by commuters. These challenges not only inconvenience passengers but also contribute to traffic congestion, environmental degradation, and increased energy consumption. It is in this context that the idea of a Safety Network System Using IoT Technology for Automatic and Remote Controlling of Bus Ride Stations was born.

[014] The concept of using IoT technology to enhance public transportation infrastructure has gained significant traction in recent years. IoT, with its interconnected network of sensors and devices, offers the potential to revolutionize the way transportation systems are managed and experienced. It allows for real-time monitoring, data collection, and automation, which are invaluable in addressing the shortcomings of traditional bus ride stations.

[015] The inspiration for this invention can be attributed to the desire to create a more passenger-centric transportation experience. Recognizing that time is a precious commodity for commuters, the system's real-time bus tracking feature

aims to minimize waiting times and provide accurate information about bus arrivals. Passengers can access this information through dedicated apps or displays at the station, empowering them to make informed decisions about their journeys.

5 **[016]** Safety considerations also played a significant role in the development of this system. In an era where security concerns are paramount, the Safety Network System offers a comprehensive suite of features to protect both passengers and station infrastructure. Surveillance cameras, emergency alert systems, and automated access control mechanisms are designed to enhance
10 security and ensure a safe environment for all.

[017] Moreover, the incorporation of environmental sensors is a response to the growing awareness of the need for sustainable and healthy transportation solutions. Monitoring air quality and temperature within bus ride stations not only contributes to passenger comfort but also aligns with the broader goals of
15 reducing urban pollution and greenhouse gas emissions.

[018] Efficiency and sustainability are at the core of this invention. By automating various station functions, such as lighting and ventilation, the system minimizes energy consumption and lowers operational costs. This not only benefits transit authorities but also contributes to reducing the carbon
20 footprint of public transportation systems.

[019] In conclusion, the proposed Safety Network System Using IoT Technology for Automatic and Remote Controlling of Bus Ride Stations is an inventive response to the evolving challenges faced by urban transportation networks. It draws inspiration from the growing importance of IoT technology in
25 enhancing various aspects of modern life. This innovation embodies the vision

of creating smarter, safer, and more efficient public transportation systems that align with the evolving needs and expectations of urban commuters. As cities continue to evolve, so too will the solutions required to meet their transportation demands, and this system represents a significant step forward in the pursuit of more sustainable, accessible, and passenger-centric urban mobility.

SUMMARY OF THE PRESENT INVENTION

[020] The proposed invention, a Safety Network System Using IoT Technology for Automatic and Remote Controlling of Bus Ride Stations, addresses the evolving challenges in urban transportation. Traditional bus ride stations have struggled with issues like overcrowding, irregular schedules, and safety concerns. To counter these problems, the invention leverages IoT technology to create smart, interconnected bus stations.

[021] Key features include real-time bus tracking, providing passengers with accurate arrival information, reducing waiting times, and enhancing the overall experience. The system also prioritizes safety, incorporating surveillance cameras, emergency alerts, and automated access control to protect passengers and infrastructure.

[022] Environmental sensors monitor air quality and temperature, contributing to passenger comfort and sustainability goals. By automating station functions like lighting and ventilation, the system reduces energy consumption and operational costs.

[023] In summary, this invention revolutionizes urban transportation by making bus stations more passenger-centric, safe, and efficient while aligning with

sustainability objectives. It's a significant step forward in creating smarter, more accessible public transportation systems for evolving cities.

[024] In this respect, before explaining at least one object of the invention in detail, it is to be understood that the invention is not limited in its application to the details of set of rules and to the arrangements of the various models set forth in the following description or illustrated in the drawings. The invention is capable of other objects and of being practiced and carried out in various ways, according to the need of that industry. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

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

BRIEF DESCRIPTION OF THE DRAWINGS

[026] When considering the following thorough explanation of the present invention, it will be easier to understand it and other objects than those mentioned above will become evident. Such description refers to the illustrations in the annex, wherein:

[027] FIG. 1, illustrates a general functional working diagram, in accordance with an embodiment of the present invention.

[028] FIG. 2, illustrates a concept of the functional flow diagram, in accordance with an embodiment of the present invention. in accordance with an embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

5 **[029]** The following sections of this article will provide various embodiments of the current invention with references to the accompanying drawings, whereby the reference numbers utilised in the picture correspond to like elements throughout the description. However, this invention is not limited to the embodiment described here and may be embodied in several other ways.
10 Instead, the embodiment is included to ensure that this disclosure is extensive and complete and that individuals of ordinary skill in the art are properly informed of the extent of the invention.

[030] Numerical values and ranges are given for many parts of the implementations discussed in the following thorough discussion. These
15 numbers and ranges are merely to be used as examples and are not meant to restrict the claims' applicability. A variety of materials are also recognised as fitting for certain aspects of the implementations. These materials should only be used as examples and are not meant to restrict the application of the innovation.

20 **[031]** Referring now to the drawings, these are illustrated in **FIG. 1&2**. The proposed invention, a Safety Network System Using IoT Technology for Automatic and Remote Controlling of Bus Ride Stations, represents a groundbreaking advancement in the field of urban transportation infrastructure. As cities continue to expand and their populations swell, the demands on public
25 transportation systems have reached unprecedented levels. Traditional bus

ride stations, which serve as vital hubs within these urban networks, have found themselves struggling to keep up with the evolving needs of commuters. Issues such as overcrowding, unpredictable scheduling, and safety concerns have become commonplace, resulting in a less-than-optimal experience for passengers and challenges for transit authorities.

[032] In response to these challenges, the invention harnesses the transformative power of Internet of Things (IoT) technology. IoT technology is an innovative and interconnected network of sensors, devices, and data analytics that offers real-time monitoring and control capabilities. Recognizing the potential of IoT in revolutionizing the transportation sector, the proposed system sets out to create intelligent, data-driven bus ride stations that address long-standing issues of efficiency, safety, and passenger satisfaction.

[033] At its core, the invention seeks to seamlessly integrate IoT sensors, devices, and data analytics into the fabric of bus ride stations, thereby providing a comprehensive solution to improve the overall quality of the passenger experience and optimize station operations. One of the central features of the system is real-time bus tracking. Leveraging GPS and other location-based technologies, passengers gain access to accurate and up-to-the-minute information regarding bus arrivals and departures. This invaluable data reduces the uncertainty and waiting times often associated with public transportation, leading to a more seamless and convenient journey for passengers.

[034] Safety is another critical aspect of the Safety Network System. In an era where security concerns are paramount, the system incorporates an array of safety features designed to protect both passengers and station infrastructure. Surveillance cameras provide continuous monitoring of station premises,

serving as a deterrent to potential wrongdoers and ensuring a higher level of security. Additionally, an emergency alert system allows for swift responses to unforeseen incidents, ensuring the safety and well-being of passengers and staff.

5 **[035]** Moreover, the system includes environmental sensors that monitor air quality and temperature within the bus ride stations. This ensures a comfortable and healthy environment for commuters and staff alike. The data collected from these sensors can also be used to optimize station operations, such as adjusting ventilation and heating systems to enhance energy efficiency and
10 minimize environmental impact.

[036] The Safety Network System further streamlines station operations through automated access control mechanisms. By automating various aspects of station management, including lighting, ventilation, and signage, the system enhances operational efficiency while reducing energy consumption and
15 maintenance costs. This leads to a more sustainable and cost-effective approach to running bus ride stations.

[037] The genesis of the proposed invention can be traced back to the persistent challenges that have plagued urban transportation networks in recent years. As cities across the globe continue to grow in both population and
20 complexity, their public transportation systems have faced increasing pressure to adapt and evolve. Traditional bus ride stations, which have been pivotal components of these systems for decades, have encountered a multitude of issues that have hindered their effectiveness.

[038] One of the most prominent challenges has been the issue of
25 overcrowding. As urban populations surge, bus ride stations often struggle to

accommodate the sheer volume of passengers during peak hours. This results in congestion, long queues, and a sense of discomfort for commuters who rely on these stations for their daily travel. The proposed Safety Network System seeks to address this by providing real-time information on bus arrivals and departures, allowing passengers to make informed decisions about their journeys. This not only reduces waiting times but also enhances the overall experience, making public transportation a more attractive option.

[039] Another issue that the system aims to mitigate is the irregular scheduling of buses. Traditional systems often rely on fixed schedules that do not adapt well to changing traffic conditions or unexpected delays. This can lead to frustration and inconvenience for passengers who may experience long delays or missed connections. The IoT technology incorporated into the proposed invention enables dynamic scheduling and real-time updates, ensuring that buses are better aligned with passenger demand and traffic patterns.

[040] Safety has always been a paramount concern in public transportation. Bus ride stations can sometimes be hotspots for various security issues, including vandalism, theft, and even more serious crimes. The Safety Network System addresses these concerns by implementing surveillance cameras and emergency alert systems. These features not only deter potential wrongdoers but also provide a means for immediate response in case of incidents, enhancing the overall safety of the stations.

[041] Additionally, the system takes into account the comfort and well-being of passengers by monitoring environmental factors. Air quality and temperature control within the stations ensure that commuters have a pleasant and healthy experience while waiting for their buses. This not only contributes to passenger

satisfaction but also aligns with broader environmental and sustainability goals by optimizing energy usage.

[042] Efficiency is another key focus of the proposed invention. By automating various station functions such as lighting, ventilation, and signage, the system reduces energy consumption and operational costs. This efficiency not only benefits transit authorities but also contributes to the reduction of carbon emissions and the overall environmental impact of public transportation.

[043] In conclusion, the Safety Network System Using IoT Technology for Automatic and Remote Controlling of Bus Ride Stations represents a significant step forward in the evolution of urban transportation infrastructure. It seeks to address the persistent challenges faced by traditional bus ride stations and harnesses the power of IoT technology to create a more efficient, safe, and passenger-centric public transportation experience. As cities continue to grow and evolve, innovative solutions like this invention will play a pivotal role in shaping the future of urban mobility, making it smarter, more sustainable, and more appealing to commuters around the world.

We claim:

1. A Safety Network System for Bus Ride Stations comprising IoT sensors for real-time bus tracking, safety features including surveillance cameras and emergency alerts, and environmental sensors for air quality and temperature monitoring.
2. The system of Claim 1 further comprising automated access control mechanisms for station security and operational efficiency.
3. A method for enhancing public transportation by providing real-time bus arrival and departure information to passengers using IoT technology.
4. The method of Claim 3 further comprising dynamically adjusting bus schedules based on passenger demand and traffic conditions.
5. An automated environmental monitoring system for bus ride stations, comprising sensors for air quality and temperature control.
6. The system of Claim 5, wherein the environmental monitoring system optimizes energy usage in bus stations.
7. A method for improving the safety and security of bus ride stations through the use of surveillance cameras and emergency alert systems.
8. The method of Claim 7, further comprising automated access control mechanisms to prevent unauthorized entry.
9. A system for reducing energy consumption and operational costs in bus ride stations through the automation of lighting, ventilation, and signage.
10. The system of Claim 9, wherein the energy-saving features align with sustainability goals.

Dated this 30th day of December 2023

Signature: 

Applicant(s)

Dr. G.Nirmala et. al.

5

ABSTRACT

A SAFETY NETWORK SYSTEM USING IOT TECHNOLOGY FOR AUTOMATIC AND REMOTE CONTROLLING OF BUS RIDE STATIONS

[044] This invention presents a Safety Network System for Bus Ride Stations,
5 leveraging IoT technology to transform traditional stations into intelligent, data-driven
hubs. The system includes real-time bus tracking, passenger information
dissemination, and dynamic scheduling. It enhances safety with surveillance and
emergency alert systems, automated access control, and environmental monitoring
10 for air quality and temperature. Moreover, the invention optimizes energy usage
through the automation of station functions. This comprehensive approach improves
passenger satisfaction, security, and sustainability, making urban public transportation
more efficient and attractive. **Accompanied Drawing [FIGS. 1-2]**

Dated this 30th day of December 2023

15

Signature:



Applicant(s)

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20

FORM 3
 THE PATENTS ACT,
 1970 (39 of 1970)
 and
 THE PATENTS RULES, 2003
STATEMENT AND UNDERTAKING UNDER
SECTION 8
 (See section 8; Rule 12)


1. Name of the applicant(s). I/We, Dr. G.Nirmala et. al., all are citizen of India, Address of one of the Applicant: Associate Professor, Sri Sai Ram Engineering College, Chennai, Tamil Nadu, India.

2. Name, address and nationality of the joint applicant. (i) that I/We have not made any application for the same/substantially the same invention outside India
 Or
 (ii) ~~that I/We who have made this application No... dated alone/jointly with....., made for the same/ substantially same invention, application(s) for patent in the other countries, the particulars of which are given below:~~

Name of the Country	Date of Application	Application No.	Status of the Application	Date of Publication	Date of grant
-	-	-	-	-	-

3. Name and address of the assignee (iii) that the rights in the application(s) has/have been assigned to none

 that I/We undertake that upto the date of grant of the patent by the Controller, I/We would keep him informed in writing the details regarding corresponding applications for patents filed outside India within six months from the date of filing of such application.
Dated this 30th day of December 2023

4. To be signed by the applicant or his authorized registered patent agent.	Signature: 
5. Name of the natural person who has signed.	Dr. G.Nirmala et. al. Name of the Applicant(s)
	To The Controller of Patents, The Patent Office, at Chennai
Note.- Strike out whichever is not applicable;	

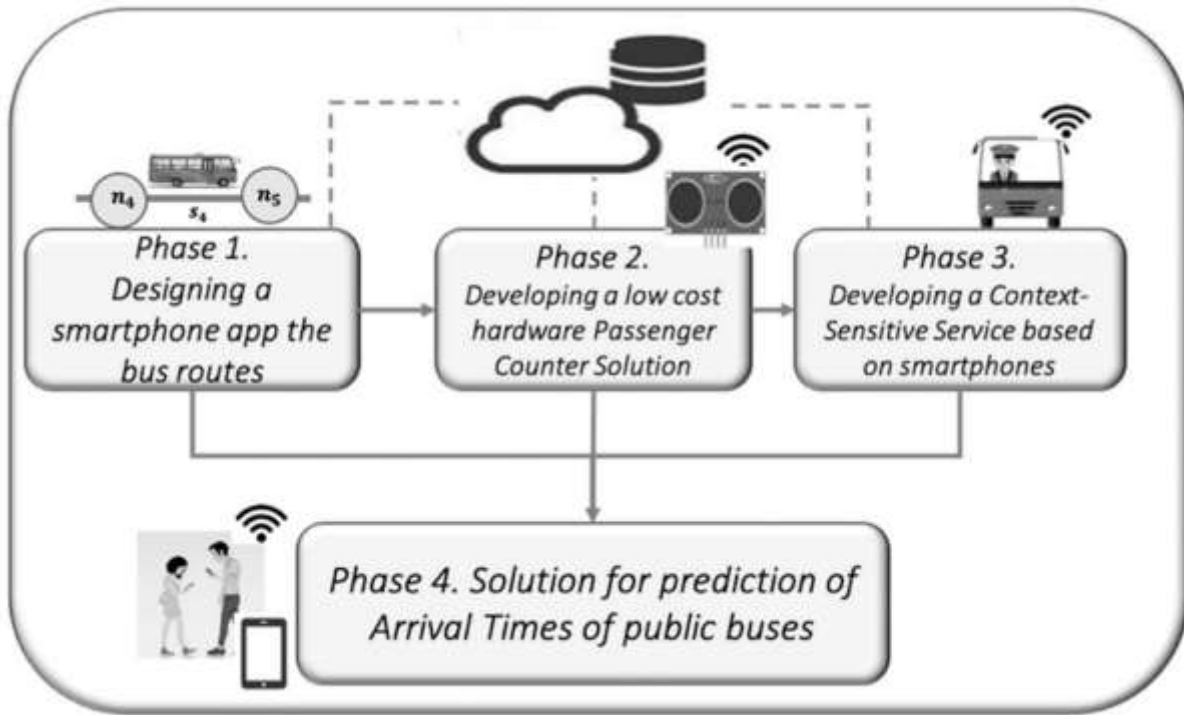


Figure 1

Signature: 

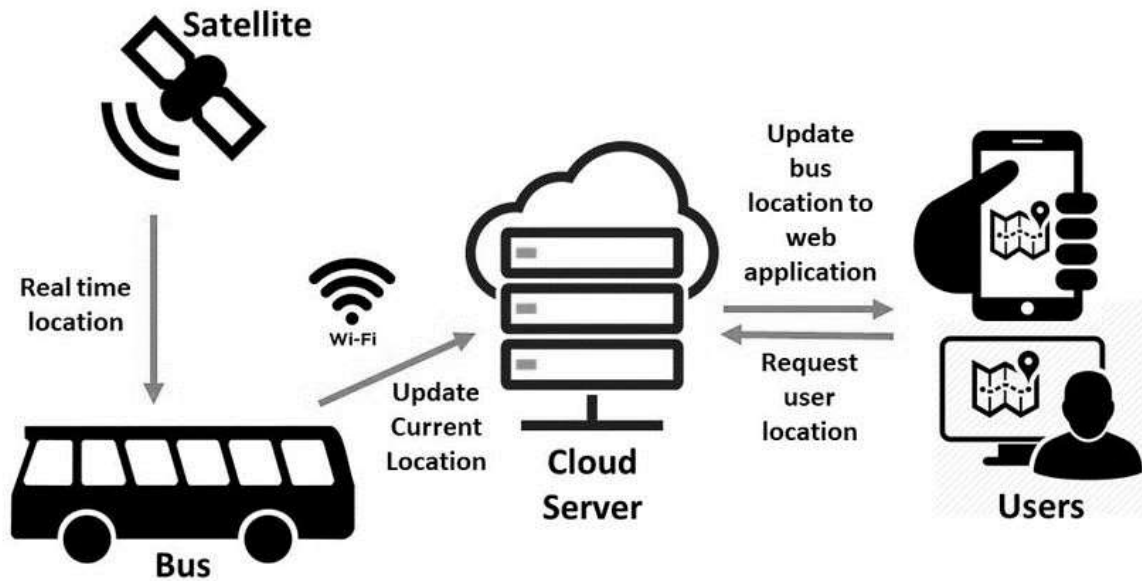


Figure 2

Dated this 30th day of December 2023

Signature: 

Applicant(s) Name: Dr. G.Nirmala et. al.

FORM- 5
THE PATENTS ACT, 1970
(39 of 1970)
&
The Patents Rules, 2003
DECLARATION AS TO INVENTORSHIP
[See Section 10(6) and Rule 13(6)]

1. NAME OF THE APPLICANT(S)

I/We, Dr. G.Nirmala et. al., all are citizen of India, Address of one of the Applicant: Associate Professor, Sri Sai Ram Engineering College, Chennai, Tamil Nadu, India.

hereby declare that the true and first inventor(s) of the invention disclosed in the complete specification filed in pursuance of ~~my~~/ our application numbered _____ dated 30-12-2023 is/are

2. INVENTOR(S)

(a) NAME	(b) NATIONALITY	(c) ADDRESS
1. Dr. G.Nirmala	Indian	Associate Professor, Sri Sai Ram Engineering College, Chennai, Tamil Nadu, India
2. Dr. Sammy. F	Indian	Assistant Professor, Department of CSE, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Andhra Pradesh, India
3. Mrs. A.Swathi	Indian	Associate Professor, Department of Computer Science and Engineering, Avathi Institute of Engineering and Technology, Cherukupally (Village), Near Tagarapuvala Bridge, Vizianagaram (Dist.), Andhra Pradesh, India
4. Dr. K. Venkataraman	Indian	Associate Professor, Department of Mechanical Engineering, Sri Sairam Engineering College, West Tambaram, Chennai, Tamil Nadu, India
5. Dr. V. Elizabeth Jesi	Indian	Associate Professor, Department of Networking and Communications, School of Computing, College of Engineering, SRM Institute of Science and Technology, Kattankulatur, Tamil Nadu, India

6. Dr. G. Kharmega Sundararaj	Indian	Associate Professor, Department of Computer Science and Engineering, Dr. T. Thimmaiah Institute of Technology, Kolar Gold Fields (KGF), Karnataka, 563120, India
<p>3. DECLARATION TO BE GIVEN WHEN THE APPLICATION IN INDIA IS FILED BY THE APPLICANT(S) IN THE CONVENTION COUNTRY:--</p> <p style="text-align: center;">N.A.</p> <p>We the applicant(s) in the convention country hereby declare that our right to apply for a patent in India is by way of assignment from the true and first inventor(s).</p>		
<p>Dated this 30th day of December 2023</p> <p style="text-align: right;">Dr. G.Nirmala et. al. Applicant(s)</p> <p>To, The Controller of Patents The Patent Office, Chennai</p>		

FORM 9

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

REQUEST FOR PUBLICATION

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

I/We **Dr. G.Nirmala,Dr. Sammy. F,Mrs. A.Swathi,Dr. K. Venkataraman,Dr. V. Elizabeth Jesi,Dr. G. Kharmega Sundararaj** hereby request for early publication of my/our [Patent Application No.] TEMP/E-1/106625/2023-CHE

Dated **30/12/2023 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 Chennai

This form is electronically generated.