Public Transport optimization

Phase 3 :Development part 1

**I. INTRODUCTION**

With the increasing population in city, cities are facing a difference range of issue such as suffer traffic fully air quality, increasing road accidents, and burst growth in number of private vehicle. And the same time decreasing share of public transport. With the development of Information technology, Internet of Things is becoming reality. IoT can assist in the co-ordinate of communication, control and information processing present in the public transport system.

The inspiration for this project was to limit and curtail the difficulties and issues related with public transport framework in India. India is a developing country. Here, we face many issues in our daily life. Citizens who use local travel in day-to-day life, local travels don’t show exact timing of bus and numbers of passengers in the bus. We developed a project with GPS system for exact location of bus and develop a circuit for count the number of passengers in the bus. The passenger simply scans the QR code which is placed in every bus stop and they get bus details in webpage. It is helpful for passenger like students and job employee. They can use it to arrive in time. As well as using the website passenger can see where the bus is how many passengers are present in bus and how long it will take for the bus to reach there.

**II. METHODOLOGY**

The system is placed in every bus the system built around Arduino nano. When system turns on, the LCD and GSM Module is initialized. The GSM module is used to accessed wireless internet in the bus. GPS is used to get the latitude and longitude that is exact position of bus. Arduino reads the position continuously. Ignition is checked. If ignition is on then the GPS co-ordinates that is latitude and longitude are read by Arduino nano. Arduino nano sends GPS co-ordinates, passenger count to webpage. IR sensors are placed at the entry and exit doors of bus to count the number of passengers in bus. If ignition is off then output of IR sensors at the entry and at exit is sensed by Arduino nano. If the IR sensor at the entry, senses passenger then Arduino nano increments passenger count by 1. If the IR sensor at the exit, senses passenger then Arduino nano decrements passenger count by 1. Arduino sends all these details of bus continuously to a webpage through internet connection the web page also contains the details of bus like bus number, bus route, bus timing which is manually uploaded by authority. Public access all these details of bus on visiting to that particular web page. For simplicity to access webpage, the QR code of link of webpage is attached to every bus stop.



**IV. MODELING AND DESIGING**

Waterfall model control the system. Schedule is set for deadlines all stages of development and projects can process by using the development process model stage one by one.

**Requirement Gathering and Analysis: -**

The passible requirement of system is developed in phase. In our project there are two types of requirements namely hardware and software requirements.

 Firstly, the connection between GSM module and webpage should be established. This connectivity will take place through internet. To establish this connectivity, required commands are sent to GSM module by the controller. Hence, TCP connection with UBIDOTS server is linked.

 Once the proposed required of our system TCP connection is linked, it is analyzed and used to send the data to webpage.

**System Design: -**

 The specifications from the first phase are studied in this phase and the system design is prepared. Specifically, DFD (Data Flow Diagram), architectural design, block design and use case design of our system is prepared which helps to specify hardware and software requirement and helps in defining the overall system infrastructure.

 DFD (Data Flow Diagram): - Signifies the exact flow of data in the system

Architecture design: - It makes the architecture of system understandable.

Block design: - It helps to clarify the controlling functionalities of the system.



**V. RESULT AND DISCUSSION**

In this output shows the first output before passengers enters in bus and the status of ignition. Shows the status of bus that is bus is on or off.



**VI. CONCLUSION**

This system is very secured and smart assisted transport. It’s more secure, smart and advanced. The system is smart and advanced as it has various features GPS tracking, IoT acknowledgement.[4] The objectives of this are, to design a system that will get the position of bus using GPS module, count the number of passengers in the bus, count the number of passengers in the bus, count the number of passengers in the bus. To design a system that will update all the data of the bus to the web page.