

# Smart Bus Management for Students Safety and Security

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**Abstract** - We all are living in the Era of automation for safety and ease. All parents in this century are very much keen and cautious about their wards. In existing systems independent systems was developed for different applications. In these developed system some used only GPS, GSM and QR code for helping the public transportation. Few system provides preventing fire accident in the bus for the safety purpose. In this paper the study of various technologies used for different application is presented. This study reflects that most of existing systems are designed only for public transportation with limited implementation. But today's scenario demands such technologies to be implemented with many features for students. In this paper based on the survey, we have proposed a system that includes features that are useful for student's transportation. The proposed work is designed to avoid the paper work and make it automated. In this system we can additionally use some other technology like biometric machine for attendance of student and store the all database of student with the help of android application which help the organization to control the transportation service.

**Key Words:** GSM, GPS, Fire sensor, QR code.

## 1. INTRODUCTION

In this, we have use the IOT technology. This is designed for avoiding paper work for knowing exact count of student that are present in the bus. IOT based Wireless communication can be used for transferring information between two or more points without using wires or cables. The modern technologies like GPS, GSM and Wi-Fi modules are used. Where GPS is used for knowing the current location of the bus. GSM is used for data transferring. As we all are aware that there are series of incidents that are happening and may kids and parents are facing horrible situations. Majors are being taken by authorities to tackle these situations but are not turning to be enough to solve this problem. Due to this the parents are more concerned with the safety and comfort of a child. All existing

systems are implemented for metro cities. Our paper is help to implement the system for rural areas.



Fig.1 Model

## 2. LITERATURE REVIEW

Sojol et al. (2018) presented an automated system for passenger counting in sitting service bus. The proposed project provides efficient and innovative way to give complete access, flexibility and satisfaction to the authority. It will work like a virtual helper. The proposed passenger counting system would be beneficial for both bus owners and government. As a working prototype, this technique has been detecting 3 seats with an accuracy rate of 90%.

Sharad et al. (2017) In the Smart Bus for a Smart City - An ongoing execution created, a model to frame transports impart to the suburbanites during a Smart City biological system has been proposed and created. It is a troublesome errand, to design a drive with the town open transportation. The suburbanites don't have the advantage of in advance data about the quickest transport courses that handle to their goal, the transport frequencies are whimsical making them less liked. This circumstance may change with the

presentation of a framework that gives continuous and exact data about the transports to the workers. This arrangement accompanies an armada the board framework that screens and helps transport chiefs to upgrade effectiveness of administration, by occupying inert transports to on-request courses progressively. This framework utilizes Internet of Things to make the biological system to connect the transport to the web.

Iqbal et al. (2014) The fundamental target of this paper is to attempt to do a pursuit on Bus Stops openly transportation to frame them smart and straight forward to utilize. The Intelligent Bus Stops are the a piece of an effective open Transportation System; we call it "The Flexible Bus System" (FBS). "Flexible" is utilized as far as Bus courses and client requests, since in FBS, Busses can change their courses predictable with Passenger requests. FBS is a Demand Responsive Transit (DRT). DRT frameworks diminish the hold up time and in this way the hold up time and the ride time of the travelers by utilizing the information gave by the travelers about their source and the goal.

Kadam et al. (2018) Residents who utilizes open transports burn through huge amounts of your time anticipating the transport at stop. In day by day activity of a transport framework, the development of transports is influenced by obscure conditions in light of the fact that the day advances like traffic or dispatching transports at unpredictable time from the depo. On the off chance that individuals going by transport get definite area of transport and along these lines the rough time of appearance upheld ordinary traffic conditions and furthermore the include of travelers in transport it will build the reliability in the open vehicle. This paper proposes a framework to follow open transport utilizing GPS (Global Positioning System), tell the include of number of travelers in transport and furthermore the evaluated time appearance to the client. The Location of Bus are regularly followed by open utilizing Android Application. The Android application will likewise contain the subtleties of all the transport like Bus number, Bus courses, Bus Stops, Bus timings or the recurrence.

Nandhini et al. (2017) In this framework programmed Fare Collection System actualized by RFID/Smart card. RFID card is given to the traveler and when traveler gets into the transport he must swipe the cardboard inside the RFID peruser and he must a goal point inside the gadget will consequently figures the charge and deduct the money naturally. Subsequently individuals don't have to convey the money and that they don't have the make a difference in giving the correct change to conductor. Conductor additionally feels free in gathering the money from the individuals. All the record will refreshed naturally inside the server persistently. At the point when a greater number of individuals are going than it's likewise simple to give the ticket.

Gawade et al. (2017) In this framework Internet of Things (IoT) joins the objects of this current reality to the virtual world, and engages at whatever time, wherever organize for adoration or cash that includes an enact and switch OFF switch. Significant proportion of information is made as broad number of devices is identified with the on the web. So this far reaching proportion of information must be controlled and adjusted over to accommodating information remembering the top objective to make profitable structures. During this paper, consider to a urban IOT structure that is used to build Intelligent transportation (ITS).

Naidu et al. (2018) In this paper the arrangement give ablaze mishap, fire mishaps are happening much of the time out in the open vehicle framework which causes the loss of most significant human lives and the administration property. There are assortment of strategies to keep away from fire mishaps and to downsize the seriousness of misfortune just if there should arise an occurrence of fireside mishaps openly transport framework. Be that as it may, the harm is calamitous as a salvage administration couldn't reach at ideal time because of ill-advised correspondence. In this way, maintain a strategic distance from and lessen the misfortune brought about by fire mishaps in transports. The fundamental target of our undertaking is to recognize the hearth mishaps and to tell the nearest particular specialists who can arrive at quicker.

Fire sensors are wont to distinguish the hearth when the accident or mishaps caused. All the sensors are associated with a focal controller at whatever point the hearth is distinguished the controller initiates the water sprinkles, sounds the alerts. A GPS module is incorporated to the framework through that the longitude and scope of the area is send to the local group of fire-fighters specialists. Hub MCU is utilized on the grounds that the focal controller inside the proposed framework. Last the information is send to the cloud through it will be accessible to all the govt. offices. Things talk cloud is utilized in the model.

Kumbhar et al. (2016) This framework bolster the ongoing electronic transport following framework. There is expanded weight on open transportation like transport just due to populace. In this way remote client needs a reasonable framework which gives ongoing data of transport. So proposed a this new framework which settles the downside of current open transportation framework. So our framework handle all the data like current area of transport, the executives of transports and its timetable. The continuous following of transport are frequently done by our proposed framework and this data is then given to remote client who need to comprehend the significant time transport data. Our framework gives electronic application, which gives continuous area of transport on Google Maps to remote client.

Sudhir et al. (2018) A bus that's coming toward the bus –stand is identified by this passenger infotainment system and therefore the details of that specific bus is provided to the passenger on display at bus-stand. Bus location identified using GPS & same are going to be announced in Bus. This information send to next bus passengers. The bus identification process involves usage of frequency technology and bus details are announced by Voice and displayed in liquid Display (LCD) unit. The summary of current research provides details about the mixing between Microcontroller and RF transceiver, GSM and GPS LCD display, Voice Announcement.

### 3. BLOCK DIAGRAM

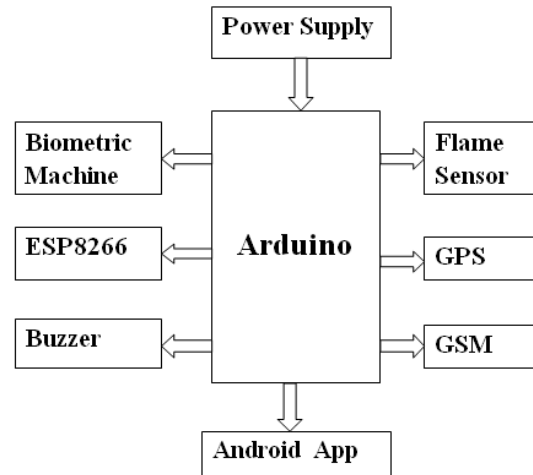


Fig.2 Block diagram of proposed system

### 4. PROPOSED WORK

In this framework biometric machine has been utilized for day by day participation. The framework comprises of three units transport unit, school unit and parent unit. Various sensors and GSM module to give the alarm messages to guardians and transport incharge when their youngsters loads up or leaves the transport. Fire sensor will be put in transport unit to distinguish fire and issues ready messages by giving the area of the transport utilizing GSM module and IOT. The whole information in two units will be handled by utilizing application. Arduino is utilized in this framework.

### 5. CONCLUSIONS

We all are aware that there are series of incidents that are happening and may kids and parents are facing horrible situations. Majors are being taken by authorities to tackle these situations but are not turning to be enough to solve this problem. Due to this the parents are more concerned with the safety and comfort of a child. All existing systems are implemented for metro cities.

In 2018, Sojol et al. had built up a framework for programmed traveler checking which works like a virtual partner and missed the consideration towards wellbeing and security of traveler. Sharad et al. created framework for continuous application and model to

shape transports convey to the suburbanites during a Smart City environment.

Proposed paper is to help and execute the framework for rustic territories. In this undertaking, we have introduced a shrewd transport following framework. It depends on GPS, GSM, advances. The proposed framework, essentially tracks the transports, appraises their appearance times at explicit bus stations and illuminates the understudy and association. In this task, we have introduced a mechanized framework for understudy tallying with assistance of biometric participation. The proposed venture gives proficient and creative approach to give total access, adaptability and fulfillment to the position.

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