AUTOMATED BUS CROWD MANAGEMENT SYSTEM

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Keywords

RFID GPS, BMTC BUS, smart card

Introduction

We come across theft, terrorist attacks on public transportation systems & fraud by Passengers or conductors by reusing the old tickets. Sometimes there is problem for the passenger if he does not have the exact change to purchase a ticket; this trivial issue sometimes leads to big fights between conductor & passengers. Also, we know it becomes difficult for investigating agencies to track the cases in case of accidents or terrorist attacks with the existing system. We are proposing a Centralized bus control system where a passenger needs to fill up the details and purchase a unique ID bus pass card having unique number. Thus, the bus centralized control cell has the passenger's details in their database. While collecting details the centralised Cell needs to collect the passenger's photo, mobile number, ID proof & address proofs as well. Also, this issued card should be valid for only certain time. In our case we are proposing the validity period for 1 year. After Expiry of the card, passenger needs to get the card renewed again in the Centralised cell by paying the prescribed fee. While preparing the data of the passenger, we can use Aadhar number (Unique ID issued by Govt of India) so that unique identity of the Passenger is maintained & hence monitoring & maintenance becomes easier. Every time Passenger needs to get that card recharged in the bus stop (Centralized Cell outlets) or in the bus itself by a conductor. With this proposed system existing old system such as the paper ticket can be removed with an e-ticket. Here E-ticket is sent to passenger's mobile number with his journey & amount deduction details in the message. As the E-ticket will have timestamp & journey details, it cannot be reused & it will be passenger specific. There is an issue of exact change to be given to the passenger when he buys a ticket. When the conductor/ passenger does not have the exact change, then it will be problem which sometimes results in fight between them. Thus, by using proposed system by conductor, a RFID reader automatically reads the unique tag number & Processor processes the transaction & deducts the amount from the passenger's tag (card). A SMS message which we call here as E-ticket is triggered to the Passenger stating that certain amount for his journey has been deducted from his tag no. This SMS again will be used by

a passenger as an E-ticket for that journey as the message will have Timestamp valid for that specific journey only & hence no issue of reuse of it thus preventing the fraud by the passenger.

Objective

    (a) To design a system using RFID GPS message to travelling in BMTC BUS.

    (b) Deduct the amount from their smart card according to the How much KM they Travel.

    (c) Message sending to the after completion of the journey.

    (d) Seat availability facility.

    (e) Crowd Management in Buses.

Methodology

    (a) IR sensors are used for detecting the crowd entering and leaving the bus.

    (b) An improvised method for generation of the bus ticket is implemented that no more overcharging can take place.

    (c) Softcopy of the generated ticket will be sent to the user's pre-registered mobile number, so that no more loss of ticket will occur.

    (d) During any accident on the bus, the GPS location is immediately tracked and sent to the nearby hospital. The overall system can be monitored from the main station.
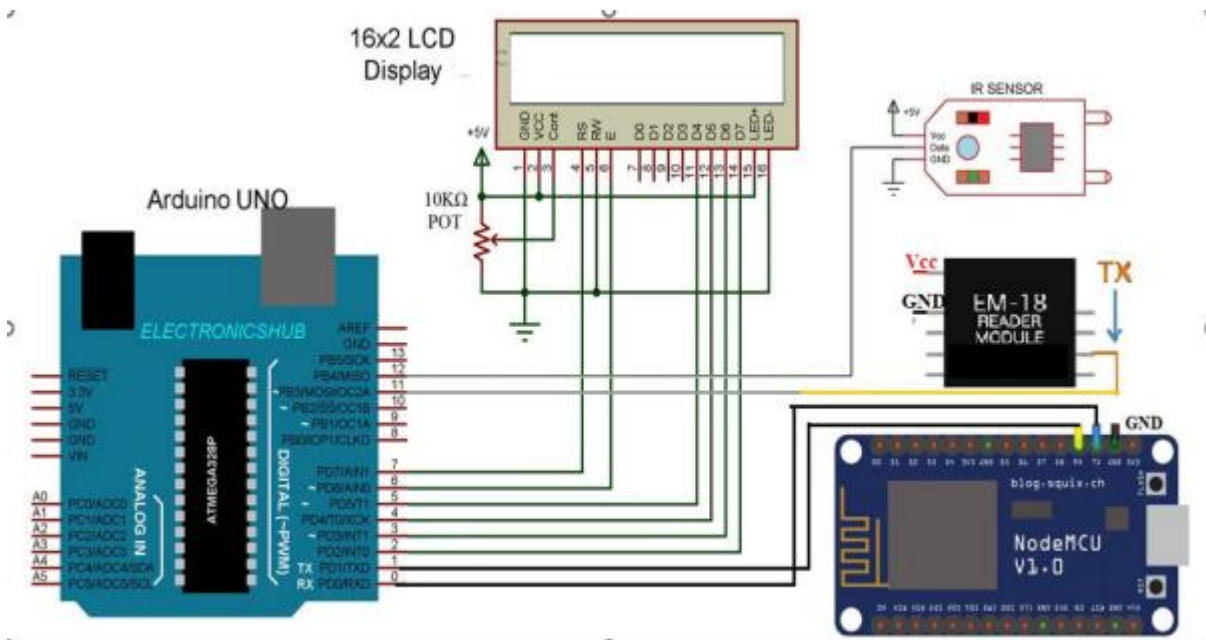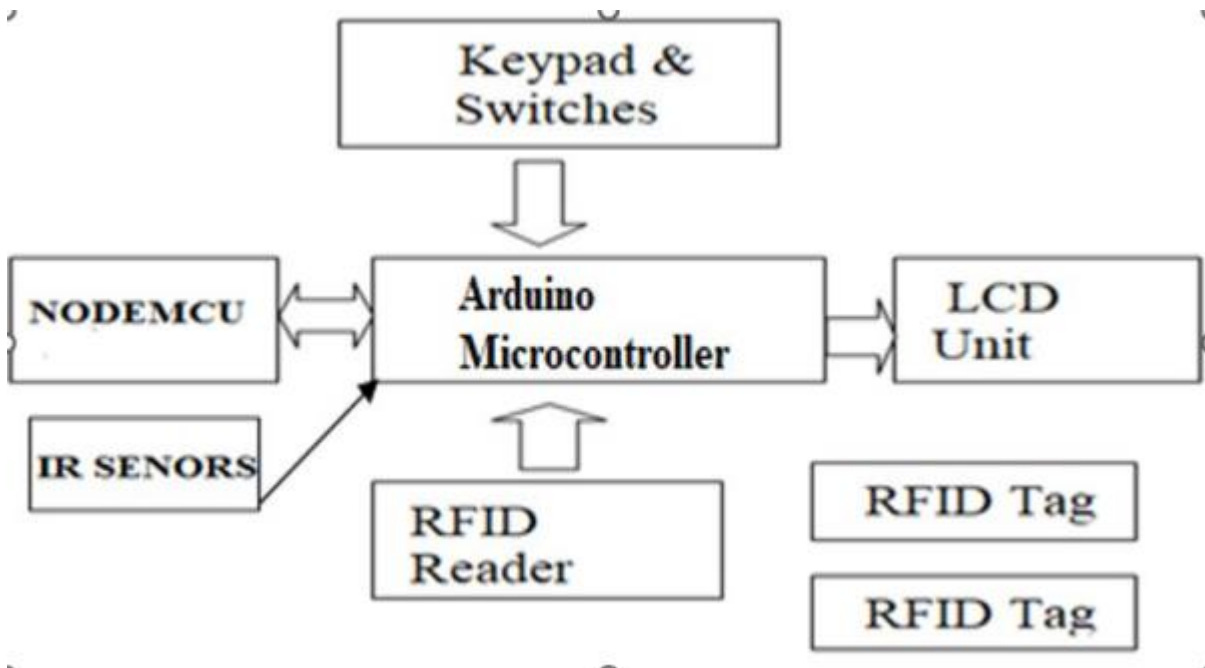
RESULTS

By implementing this project proposal, we greatly reduce the manpower, saves time and operates efficiently.

This project is helpful in managing the crowd in the bus, if the bus is full, it will send a message, Deduct the amount from their smart card according to the How much KM they Travel and Message sending to the after completion of the journey.

These are the major facilities which are included the project so it will helpful to avoid the spreading of the corona virus from one person to other persons

Results and Conclusion

By implementing this project proposal, we greatly reduce the manpower, saves time and operates efficiently. This project puts forth the first step in achieving the desired target. This project is helpful in managing the crowd in the bus, if the bus is full it will send a message, Deduct the amount from their smart card according to the How much KM they Travel and Message sending to the after completion of the journey. These are the major facilities which are included the project so it will helpful to avoid the spreading of the corona virus from one person to other persons.

The system helps let the commuters know about the live crowd density of a bus. It accurately identifies the crowd density levels from the captured images. Such a system will cater to the needs of people who use public transport for their day-to-day needs. As a real-time server have been used, hence there will be no connectivity issues in transmitting the data about crowd density. Also, since images are just getting captured and not recognizing a person's face hence there would not be an issue about privacy invasion. The proposed system can further be improved by incorporating GPS in it so that people will get an idea

about how much time the bus will take to reach the required destination. An application can also be developed so that people will know the crowd density of a bus while they are at their workplace or while they are at their homes.

Scope for Future Work

There being a large scope once digitalized one of the other applications which could be implemented is, when there are children below the age of 16 who would be using their discount card to travel to and from there school/ college their parents or guardians could subscribe for a service where in which to let them know when and where their children are. In this manner there is an opportunity to expand and develop using this system.

The design and development of this project is due to its tremendous scope in public transport system. The aim of this project is to design and develop and check the crowd and if the crowd is more it will intimate to the Bus depot to send another bus to the same route. Here the Smart ticketing is done to make the fares to be error free. It provides an easy option for seat availability checking for public in a easy way.