

Smart Ticket Collection System Using RFID

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Abstract—In transport system buses plays an integral role for public transportation all over India. In larger cities like Bangalore, Mumbai, Delhi and Chennai, almost everyone travels through Public transport every day. In this era of Digitalization, a campaign which was launched by the Government of India to adapt Cashless Economy, public and also transportation heads need to acquire new technology advancement. Even though buses are providing good services to public, we are in need for reliable and smart system. Majorly experienced problems by the public at bus stops are waiting for bus, negligence of providing seat to the passengers, non-refund off balance, etc. Therefore to provide quick, easy and smooth ticketing experience to the public, our proposed smart application helps in providing seat to the passengers automatically and mode of payment will be cashless there by promoting digitalization and also smart cities initiatives, the user can even check for the availability of seats.

Keywords—ARM7LPC2148 microcontroller, RFID tag Reader, Wi-Fi module, GPS, Buzzer.

I. INTRODUCTION

Buses are the most widely used public transportation all over India, especially in large cities like Hyderabad, Delhi, Bangalore, etc. Millions of people travel through Public transportation everyday. Even though transportation system providing good services to public, we are in need for adopting a

smart and reliable system. Passengers who are travelling experience many problems like waiting at bus stops, non-refund off balance, and negligence in providing seat to passengers, etc. people majorly depend a method of manual ticket generation and management. Due to increase of population in our country, the method of manual ticket generation has become a complicated process as they lack the awareness in solutions available with the latest technology. They are to provide a quick and smooth ticketing to passengers; we have proposed a ticket collection system which allows great traveling experience during peak and normal hours.

To control all these difficulties which was faced by the public, our system management includes technology like IR sensors for passenger count, QR code for generating ticket using an application and also control and stores data that is being generated in database management. We had used ARM7LPC2148 microcontroller which contains 60 pins, we have used RFID reader and RFID tag which is rechargeable and also helps to check the seat availability in particular bus, buzzer is used to notify the passenger about the availability of cash in tag. Passenger can be able to check seat availability. Mode of payment will be cash less there by promoting digitalisation and smart cities initiatives.

II. LITERATURE SURVEY

John Puchera, NishaKoratyswaropama, NehaMitala, NenuItyerah[3] wrote an article about Urban transport crisis in India, which summarises main orientations in transportation system of India and transport behaviour, analyses the scope and sources of most of the problems, and put forward nine policy improvements that helps to reduce India's urban transport crisis.[1]

Followed by Brian, transportation system by public plays a chief role in handling with traffic overcrowding, bringing down carbon emissions, and this even helps in promoting compact and assist urban community. Infrastructure and technology are growing quickly now-a-days which has made lives easier [2]

Achmad Nizar Hidayanto, Hariyanto Prabowo, written a Literature Review about IoT for Development of Smart Public Transportation System. This study explores the opportunities and public transport provides many challenges for applications of IoT. Final results of this overall study says that IoT utilisation until now tends to give precedence in avoiding road accidents but it is not yet competent like how much clever transportation system be developed by joining bus schedule, availability of bus checking, and efficient method of paying amount by the passengers by booking seats which will reduce crowding and also wasting of time for passengers[3].

In compliance with Panchal building a wireless network which uses IEEE ZigBee method which responds for disasters and notify every individual in every minute and in a cost-effective way. Transport efficiency is greater, very importantly it helps in safety driving [4].

Giridhar Maji and Sharmitha Mandal, developed fantastic Mode for Smartest Bus System which used IoT for implementation has a city bus service to mode land upgrade as per the smart city theme of India using Aadhar Card and its different components have been discussed along with their services and interconnectedness through Internet of Things paradigm[5]

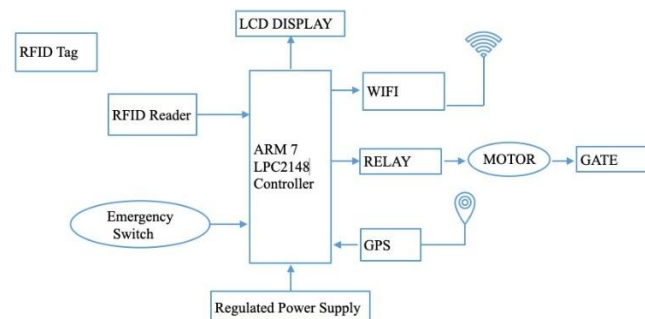
In the year 2013 authors named Paul Hamilton, Suresh Sankaranarayanan had published a paper that a RFID for recording timings of all buses this is done with the help of sensors present near traffic signals, junctions, and places nearby. These timings are sent to passengers mobile where RFID of passenger is used in getting timings of bus and those details are stored in RFID for references [6].

Prof. A. U. Deshmukh, Priyanka Kokil, Dhanashri Khadtar, Bhagyashri Khadtar (2016) in this paper it consists of one camera helps in capturing of images of persons entering the bus and check the passengers availability in data then amount will be deducted from account according to the distance they travel and a message is sent to passenger about amount. If in case data is unavailable, he needs to carry RFID with him [7].

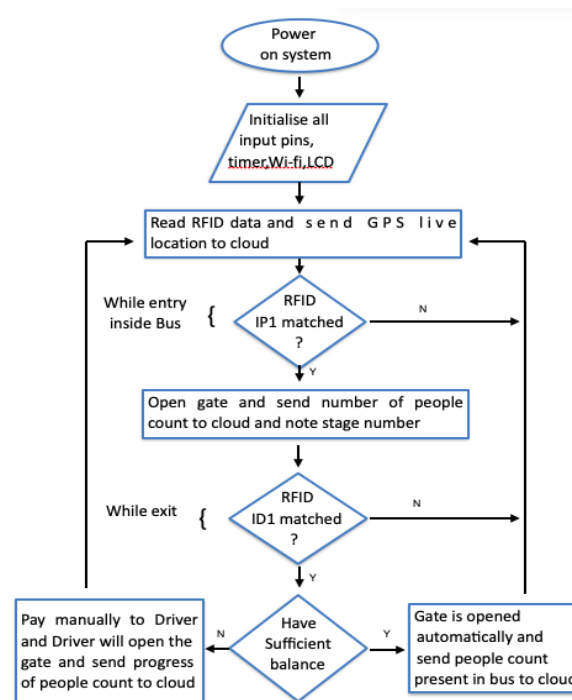
III. PROBLEM DEFINITION

Transportation had become a great significance because of its beneficence to every citizen and state-wide, local economy, industrial. People in developing countries faces several issues in transportation to avoid those problems we require a new solution. Great raise of population in metropolis and contamination has been a serious issue in transportation system and importantly increase the challenge in creating for future transport system. Specially countries which are massively populated like India, managing all features in transportation is hard task. According to the present scenario there is no such system smart system that providing content about the bus (waiting and departure time), number of passengers in the bus. Conductors face problems in collecting fares as well as information about seating availability. Other problems related to the bus transportation in the existing system are waiting period, no real time bus schedule information, fixity, transport in adequacy, centralised bus dispatched controlling, bus bunching, fare collection, seating information and bus buffer are an information in the bus stand.

IV. PROPOSED METHODOLOGY



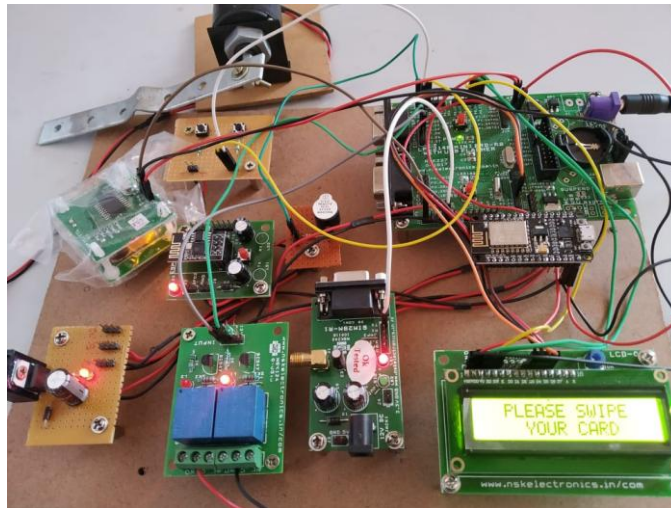
This implementation used for Real-time usage for collecting fare automatically. We have used RFID which is a recent emerging technology. It consists of two components; one is RFID Tag and the other is RFID Reader. FID Tag have contents like address, location. Whereas RFID Reader reads the content through RFID tag. We have used IR sensor for counting the persons entering the bus. Using IOT concept in network devices to get data from cloud and share data across the internet where it can be processed.



V. RESULT AND DISCUSSION

The manual ticket collecting system had lot many issues which will help to overcome all the issues by our proposed project with the name smart ticket collection system using RFID which is an creative idea in which it reduces man power, both passengers and bus stations will be benefited from this system was a real time information provider.

RFID helps to solve the above-mentioned problem. Our project is public friendly, and this system is suitable for large cities like Bangalore, Hyderabad, and Chennai where large number of people use public transport system daily.



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