International Journal of Scientific Research and Engineering Development-– Volume X Issue X, Year

Available at www.ijsred.com

RESEARCH ARTICLE OPEN ACCESS

BUS TICKETING SYSTEM USING RFID,GPS&GSM MODULES

Mr.C.LaxmanaSudheer[1]

V. Anusha[2], Pagadala Dinesh[3], K. Bhanu Priya[4], K. Dlieep Kumar[5], N. Amaravathi[6]

(Asst. Prof &Additional Controller of Examinations, ECE Dept, Siddartha institute of science and Technology, Puttur, A.P, India)[1]

(B.Tech. IV Year Student, ECE Dept, Siddartha institute of science and Technology, Puttur, A.P, India)[2]

(B.Tech. IV Year Student, ECE Dept, Siddartha institute of science and Technology, Puttur, A.P, India)[3]

(B.Tech. IV Year Student, ECE Dept, Siddartha institute of science and Technology, Puttur, A.P, India)[4]

(B.Tech. IV Year Student, ECE Dept, Siddartha institute of science and Technology, Puttur, A.P, India)[5]

(B.Tech. IV Year Student, ECE Dept, Siddartha institute of science and Technology, Puttur, A.P, India)[6]

(Email.id:-anujyoshu@gmail.com)

----------**********----------

Abstract:

Transportation plays a key role in our daily life, where time and money saving helps more in this proposed system, now days so many people are travelling from one place to another place by using different transport services. So, to help the people with technologies we are using RFID and Arduino based systems which are common in other systems but here is the update using the switches that with a single tag we can choose the different point that we have to be reached, here GSM used help in communication about the amount deduced and balance and GPS which helps in checking the location by using RFID. The RFID tag used must be the registered one only without the registration it shows error. This system makes the transaction fully easier than the past travelling that they want to come to each and every passenger and collects the money an return the change these all can be finally reduced and the man power also reduced**.**

Keywords — **RFID Tags, RFID Readers, GPS, GSM, Switches, LCD.**

----------**********----------

I. INTRODUCTION

This system mainly helps in over population in transport system, at this type of situations that the conductor cannot help in collecting the money and giving the tickets and giving change back, this is also a paper required matter this paper wastage is also reduced by using our system, by doing this all things in bus it also takes lot of time, this also can be reduced.

When observing the proposed work you can also conclude that the proposed system is better than that of present electronic machines, the embedded c is used to perform the specific tasks included in Arduino, embedded system is a combination of both hardware and software the interfacing is done between the both of them. The Arduino supported in c and c++ programing languages, we used c in our particular system, the software used Arduino IDE is an integrated development environment which includes with two main platform like run type ad editor type in which we can write the program and run the file then we can conclude if there is any error and we can modify it in editor side.

Arduino is a hardware type of microcontroller which helps in controlling of entire process and Arduino IDE is a software open source used .

II. RELATED WORK

As of previous carried projects have some insignificant Output .so, we have given clear cut information of that difficulties, that the materials

which are used in the project are also of low cost with high benefits

However to simplify our system we are using Arduino it can combine hardware and software easily. Such that so many people are using raspberry pi because it is the latest development but it cannot under with c language and c++ coding languages. Thus we are using Arduino for communicating hardware with c language and the system should be of low cost and high given output such system can be only at high ranges so comparing between Ardunio and raspberry pi our system Ardunio is low cost and there are no disadvantages.

C is used in Arduino and python can be used in raspberry pi comparing between the software also python can be easily coded but in a c language a clear information will be produced and clarity of code can be maintained. The each and every output of the system is displayed on LCD and messaged related to this is forwarded to the particular number which is registered.

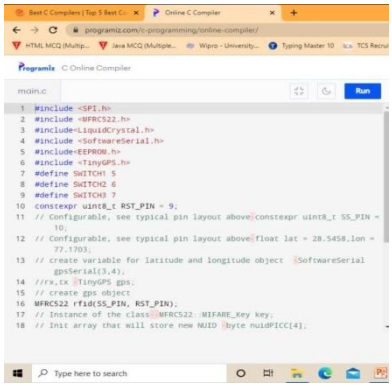


Fig 1: - coding

The above coding figure is the screenshot of the progress coding that is induced in the Arduino.

Here comes main point is the sim with phone number induced in the GSM and number that is resisted in the RFID tag cannot be same, because the message must be sent from one communication service to another communication services, if they are same then it will be like a one way traffic the message cannot be sent or nether revises, so, the number should be varied.

III. METHODOLOGY

The total progresses of the process are done in this methodology by using the materials which are used their process also explained clearly.

A. *RFID* TAGS

Tag contains a small IC, and they are of different size and shapes the date that can be stored in tags are of few bits only as of we are using a non-volatile memory (that means date can be retain stored even after the power ids off).The tags is present with the passenger who is going to travel, tag is must and should contain while getting into the bus, without the tag the passenger what to pay money by hand. This tag contains of the money that will be deduced after the traveling and it is rechargeable, we can recharge at certain places.

Fig 2:-RFID tag

B. *RFID* READER

RFID Reader is stable part it cannot be carried because it is inbuild it in bus. This reads the information from the tag when the tag reaches the reader the date will be scanned by using electromagnetic waves. RFID Reader has a radio transmitter and recipient inside, for the receiving of information from tag. The received information from tag will be forwarded to Arduino that will store the information and help to other materials like GPS and GSM module.

Fig 3:-RFID Reader

C. SWITCHES

In this paper we are mainly using of 3 switches, such that they decides the destination that the passenger is going to be reached, here this switches plays a key role, operation of the switches starts after swiping of RFID tag to RFID reader then the next step is choosing the destination that our destination (reaching point) is our own choice they are built in such a way that switche1 is for tpt to Tirumala, switche2 Is for tpt to Bangalore, switch 3 is for tpt to Chennai. This is the process that is taken place in the switches.

D. GPS

Global Positioning System is a satellite based system uses satellite for mobile communication and position tracking this produces and longitude and latitude valves which helps to find the location.in this our paper helps to find their present location if they are in need of finding their location, this GPS acts like a personal navigation information to the passenger.

This GPS takes help from satellites by receiving signal but it goes not transmit back any of the information related to this, it works like a one way process.

Fig 4:-GPS

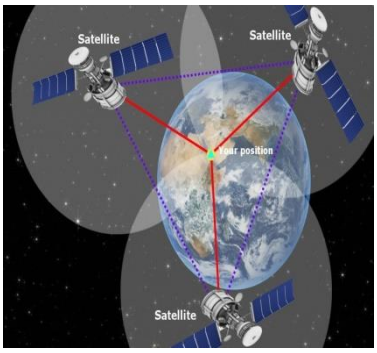
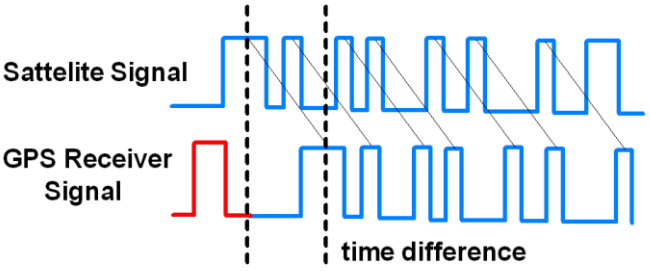


Fig 5:- Receiving signal from satellite

From fig 5 we can see the GPS on earth is receiving the information from 3 satellites, by taking from different satellite we can get the accurate position and time.

POSITION AND TIME



This is the signal waves according to GPS and satellite.

E. GSM

GSM full form is Global System for Mobile Communication, which was developed in 1970. This helps in communication purpose. Such that in our connection we use GSM with insertion of a sim card help in communicate, it is one of the wide range application.

SIM used in GSM helps to activate communication we can also check the sim card if it is in working condition or not by making a call to the particular number which that sim is registered with, when we make a call such that it start ringing then only we can confirm that it is working if it not in working condition then it will not connect and

start ringing at all. This acts like a modern also at some time; this over all communication can be done by using USB cable connections or any other connectors.

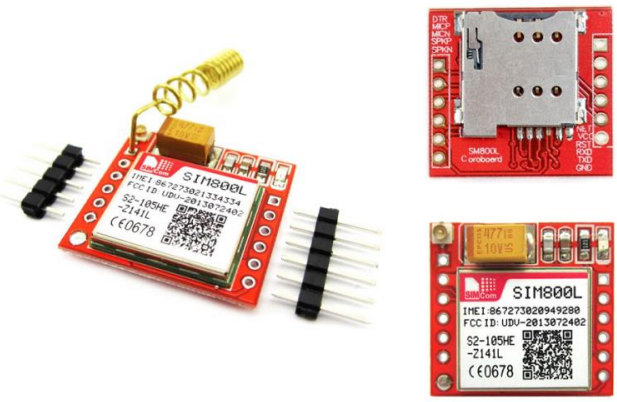


Fig 5:- GSM

F. LCD

LCD is a Liquid Crystal Display with o display plate of 16*2 simply explains 16 characters can be shown per line and 2 such line exit ,this lines contains of 5*7pixels.

Fig 6:-Front view of LCD

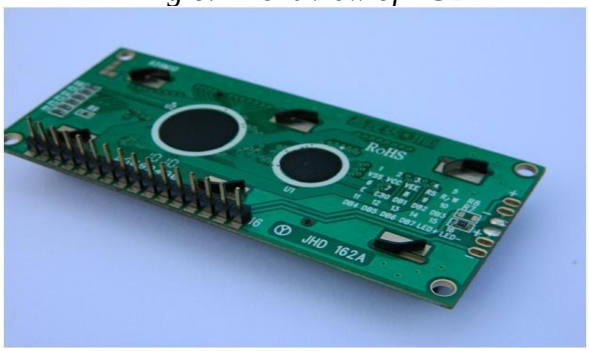


Fig 7:- Back view of LCD

In this back view can see the board connections that are in build and also the pins for connecting to other materials used by using connectors.

Here an LCD pin connection is main clean pins are shown in below fig

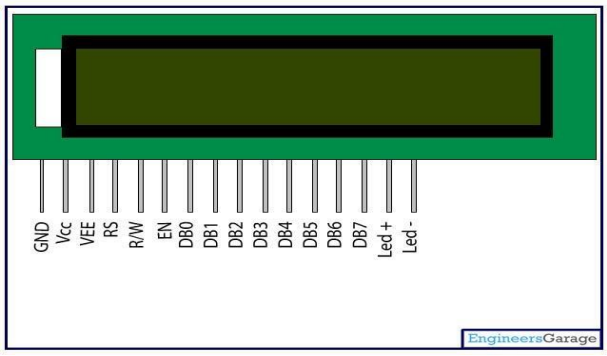


Fig 8:-side view of pins

PIN DESCRIPTION

Totally t contains of 16 pins in an LCD, such that 8 pins means from 7-14 pins are used for date purpose and 1 and 16 pins are grounded such that a high amount of power supply also help the circuit from damage b grounding the pins, 2 is for vcc (-ve), 15 is for vcc (+ve) for this vcc we are going to produce of 5v of current.

G. POWER SUPPLY

For power supply present in our total circuit we are going to produce of 5-12v, such that there will be no damage to any of the equipment used, For an Arduino power supply is connected through connector's .now for present we are not giving direct power supply to Arduino because it causes circuit damage.

Fig 9:-Power supply

IV. OVERVIEW OF PROPOSED WORK

Total transport related services and other technologies were all studied in this proposed work. Firstly the power supply is given to the GSM, this power supply is given after the insertion of SIM, then the flow goes like to the power supply unit here we are producing 12v of current, thus the power is supply is throughout the board, as we are coded to BUS TICKETING SYATEM this will be displayed in the LCD board because we have not yet started the swiping the card.

At lastly the stating process is that the card is swiped to the reader which is placed in the bus this RFID tag/card will be accessed with any buses related to bus transportation. Then we have to enter into the bus. Above fig explain about the swiping this reader and tag must be in the range of 125 kHz.

This above figure can examine the switches they the destination deciding point after swiping the next process is pressing any one of the switches ,in this we have condition we have to press only one among these three them only system goes to next process.

After pressing the switches according to the existed in the code that is stored in Arduino is getting worked and the amount that is fixed will be deduced from the card and the balance will be also displayed in the LCD and also the both detail's will be also get to the mobile by using global system for mobile communication the full details that are to and from an also the amount deduced and the balanced details also.

Finally we can start the journey, the below figure shown the total progress details with a neat details connections.

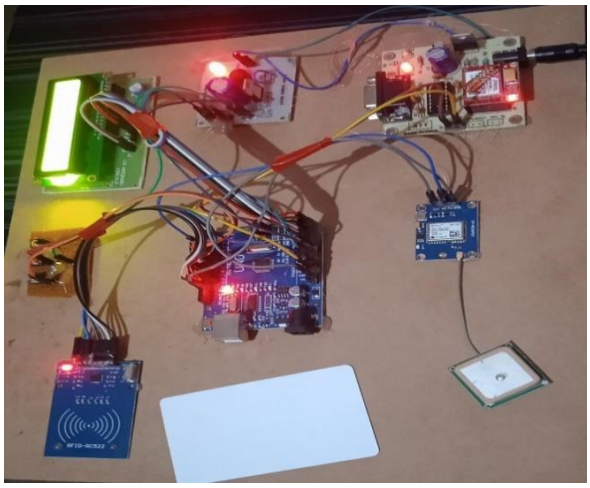


Fig: - Final hardware output

V. CONCLUSIONS

The main Aim of the project is too save paper and time. The time is very important in present generation. So we are saving our time using this system. We are providing the bus better bus ticketing system by using RFID card which can be carried easily while travelling.

The card has access to any bus services and smart cards are reusable over a particular period of time.

So secured journey is available for the people who can carry RFID card this system can be implemented in public transport services.

Aspired this system to be attempt to achieve a small step in recent enhanced projects of converting our country cites into 'smart cites'.

REFERENCES

1. Thangamma K C, ranjithaSK, sanjanaKJ, shreya M G.," RFID BASED SMART TICKETING SYSTEM FOR PUBLIC TRANSPORT SYSTEM" On May 05,2020.
2. V.B.Kumbhar, Y.V.Sawant, pranavkavathekar, tanmayjoshi, "SMART BUS SYSTEM USING IOT" On April 04, 2019.
3. RezowanaAkter, MdJahidHasan Khandaker, Shakil Ahmed, MuhtasimMunem Mugdho, A K MBahalulHaque" RFIDBASED SMART TRANSPORTATION SYSTEMWITH ANDROID APPLICATION" On May 28, 2020.
4. Shreya Andhale, Nirmayee Dighe, Akanksha Kore, Darshana Gaikwad, Jayasudha Koti " RFID BASED SMART TICKETING SYSTEM" On July 11,2020
5. J.B. Gordon, ―Intermodal passenger flows on London's public transport network: "AUTOMATED INFERENCE OF FULL PASSENGER JOURNEYS USING FARE TRANSACTION AND VEHICLE-LOCATION DATA",‖ M.S. thesis, Dept. Urban Stud. Plan., Mass. Inst. Technol., Cambridge, MA, USA, 2019.
6. V.Venkatakrishnan,R, Seethalakshmi, "Public Transport Ticketing And Monitoring System," Journal of Theoretical and Applied Information Technology, vol. 38, no. 1, pp. 31-34,2012.
7. SaurabhChatterjee,Prof. BalramTimande, "Public Transport System Ticketing system using RFID and ARM processor Perspective Mumbai bus facility," International Journal of Electronics and Computer Science Engineering, vol. 1, no. 3,pp. 1619-1622, 2012.

