

Conductor Less Bus using Image Processing

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Abstract— The concept of this project is to introduce a conductor less bus. That means as the passenger enters the bus, the camera will capture the image of his face and will verify whether the particular face is already exists in database. If it exists then automatically the fare of bus will be deducted from the passengers account and the respective update will be sent to the passenger. If the face captured is not available in database then the passenger will have to carry RFID card with him which he will use to pay the fare of the bus. Using this concept, the manual effort will be reduced and the happenings of people travelling without tickets will be stop.

Key words: Conductor Less Bus, Image Processing

I. INTRODUCTION

A. Existing System

In the general way, every bus is controlled by a conductor. The conductor will collect money from each passenger and issue ticket. Initially, printed papers or tokens are used as tickets. Nowadays, handheld machines are used to print tickets.

This system has many disadvantages. The passenger have to carry the ticket till the end of travel, the conductor should ensure that everyone has got the ticket, the time taken for ticketing is comparatively more and more amount of paper is needed to print the Ticket. Nowadays conductors are trained to operate the handheld ticketing machine.

For example, if a passenger wish to travel in bus. He has to carry money with him. Then conductor will collect the money and he will give ticket. This has to repeat for all passengers. This will take more time and waste of human resource as well as energy. Even handheld ticketing machine is comparatively slow and need trained person to operate it.

B. Proposed System

In proposed system as the passenger enters the bus, the camera will capture the image of his face and will verify whether the particular face is already saved in database or not. If it is saved then automatically the fare of bus will be deducted from the passengers account and the respective update will be sent to the passenger. If the face captured is not available in database then the passenger will have to carry RFID card with him which he will use to pay the fare of the bus. Using this concept the manual effort will be reduced and the happenings of people travelling without tickets will be stop.

II. BLOCK DIAGRAM

The following figure shows the block diagram of proposed system.

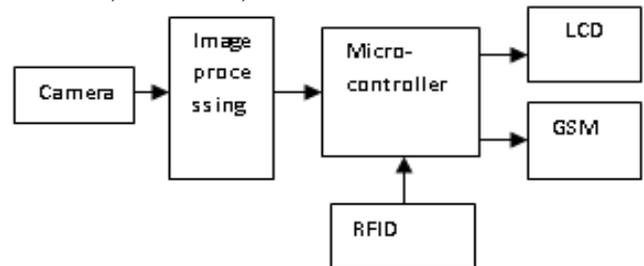


Fig. 1: Block Diagram of Proposed System

The camera will take the picture of the passenger. This image will be the input for image processing unit. The image processing unit used here is PC. It will process on the image and will find the match from available database (which is the collection of image and personal details of passengers, stored at depot).

The output of image processing unit is further given as input to microcontroller. The LCD, RFID and GSM module are interfaced with microcontroller. If the perfect match is found then the GSM module will send the message to the passenger. If the perfect match is not found then the passenger can use the RFID card. The output is displayed on LCD.

III. METHODOLOGY USED IN PROPOSED SYSTEM

The ticketing system in the existing system is replaced by the face recognition and the RFID tag which is rechargeable one. The personal details like bank account number, mobile number, etc. of the persons in the local area are saved into a database. If the persons are travelling by the bus the cameras at the entrance will recognize the face of the passengers. After gating the exact match the reasonable fare will be deducted from the respective person's bank account. If a face is recognized second time the fare will not deducted. The list will be deleted after 12A.M. and the new list is generated.

The passengers who are tourists there data will not be available with the local database. We have a different arrangement for them. We will give them a RFID card which is rechargeable one. After scratching the RFID card the amount of reasonable fare is deducted from the amount available with the card. We can refill the card.

IV. HARDWARE & SOFTWARE TOOLS

A. Hardware Tools:

- 1) Atmega324
- 2) Camera
- 3) RFID Module
- 4) GSM Module
- 5) LCD

B. Software Tools:

- 1) Matlab
- 2) Diptrace
- 3) Proteus

4) AVR studio

V. LITERATURE SURVEY

Gujarat State Road Transport Corporation (GSRTC) has been reeling under debt burdens, regulatory obligations and heavy taxation, besides enhanced competition from private operators. The above combination has seriously undermined its financial health. The situation is further aggravated by inconsistencies like inappropriate staffing, economic prosperity of its customers and development of alternative transportation systems. To address the crisis the corporation has initiated a series of measures aimed at enhancing its operational effectiveness and competitiveness. The present case study describes GSRTC's endeavor to strategically transform itself into profitable and sustainable organization.^[1]

The objective of conductor less bus ticketing system using RFID and accident information through GPS and GSM is to count the passenger using IR sensor to calculating the distance travelled by passenger automatically using motor and u-slot sensor, and the corresponding amount is debited from RFID card. In addition to that, in proposal system the occurrence of accident information is automatically transmitted to the nearest hospital using GSM and GPS. In IR transmitter and receiver, IR transmitter is nothing but one type of LED, generally called IR transmitter. Initially IR transmitter and receiver are placed straight to each other, so the transmitted IR ray are received by IR receiver but when passenger crosses the IR transmitter and receiver, the rays receive will be interrupted. Here the microcontroller used is Atmel89C52, is flash type reprogrammable memory in which they have already programmed. So, signals received from SCU and implement the count value. Micro controlled, keypad and LCD are provided in bus depot for recharging purpose by own.^[2]

Mobility of persons and goods currently represents an interesting field of application for innovative ICT tool as Radio Frequency Technology (RFID). RFID technology is increasingly spreading in logistics activities, such as warehouse management, supply chain traceability. RFID could support an automatic vehicle and person identification system by reduce investment costs. In the present paper, authors purpose an Integrate Mobility System (IMS) aiming to improve performance of ticketing management in public transport network based on an intensive application of RFID technology.^[3]

The objective of this project is to introduce a conductor less bus. That means as the passenger enters the bus the camera will capture the image of his face and will verify whether the particular face is already saved in database or not. If it is saved then automatically the fare of bus will be deducted from the passengers account and the respective update will be sent to the passenger. If the face captured is not available in database then the passenger will have to carry RFID card with him which he will use to pay the fare of the bus. Using this concept the manual effort will be reduced and the happenings of people travelling without tickets will be stop.

VI. CONCLUSION

This report introduce conductor less bus using image processing. We have used face recognition for identification

of passengers. In case of failure of the image processing unit we will be using RFID cards. We have satisfactorily worked the development of the existing ticketing system, which will reduce human efforts and provides facilities, ease and comfort.

REFERENCES

- [1] T. Maniknandan, G. Kalaiyarasi, K.Proyadarshani, R. Priyanga (Sept 2015). "Conductor less Bus Ticketing System Using RFID and Accident Information Through GPS and GSM", IJSET, Engineering and Technology, Vol.2 Issue.9.
- [2] Shubhabrata Basu, N. Ravichandran(April-June 2010). "Towards The Strategic Transformation Of Gujarat State Road Transport Corporation" Vol.2 Issue.1
- [3] Maria Grazia Gnoni, et al , 2009 "A Smart Model for Urban Ticketing Based On RFID Application", IEEM09-P-0572,IEEE.
- [4] Arul Das.s.v.k.lingeswaran,"GPS Based Automated Public Transport Fare Collection Systems Based On Distance Travelled By Passenger Using Smart Card.
- [5] Suresh Sankaranarayanan, Paul Hamilton (2014). "Mobile Enabled Bus Tracking and Ticketing System", IEEE trans, Vol.13(9), pp.768-775.
- [6] Ana Aguiar, et al "Personal Navigator for a public transport system using RFID ticketing".
- [7] Bernard Menezes1, et al "Challenges in RFID Deployment – A Case in public transportation".
- [8] Bo Yan, Danya Lee, 2009, "Design of Sight Spot Ticket Management System Based on RFID", International conference.
- [9] George Roussos, Vassiliskostakos, "RFID in Pervasive Computing: State-of-the-art and outlook".
- [10] Karaikos, Dimitrios, et al "User Acceptance of Pervasive Information Systems: Evaluating an RFID Ticketing system".