RFID Based Railway Ticketing and Security System Using Solar Energy

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Abstract— **RFID based ticketing system aims at providing a comfort, tension free and easy way of travelling and also to reduce the man power. The challenges which are faced currently in the ticketing system mainly comprises of "Queues" for buying the tickets for local trains. Even though, as there has been a tremendous expansion in the field of technology, we still buy the tickets by standing in queues which is a long, cumbersome and inconvenient processes time requirement is more and also losing or theft of cards proves to be uneconomical. This paper deals with the development and implementation of a phone application and a server to buy the local train tickets which is simple and easy to use. Our ticket can be bought with the help of a phone application through GPRS, where your local railway tickets can be carried in your phone in the form of a soft copy. The ticketing information of the user is stored in the database. It uses phones facility for ticket and deletes it automatically after a specific interval of time once the user has reached the destination.**

Keywords- **RFID, GPRS, ticketing system.**

I. INTRODUCTION

The railway is the heart of the Indian economy. The lakhs of people travel everyday through the trains. Some are going for holidays or some people have to reach their destinations to start office after the vacations are over. Finding the exact coach and making a reservation is the most difficult thing in our country. Many times the corruption also creates problem in making a reservation. As for the RFID application, it's been a widespread tool for both tracking the transit transports and for the public ticketing system. It's already been an outstanding achievement throughout the globe including big cities like London, U.S., Shanghai, Moscow, Porto and many more countries. This system can be implemented for subways, railways and public bus services for the sake of systematic operations in corresponding cases. In the megacity Pune the conventional system of public transport is based on paper based bus or railway tickets that ultimately lead to chaos among public, system loss, corruption and most of all traffic jam that is responsible for a huge wastage of time and money and environmental losses. No prior notification of the arrival and departure of the transports are available creating a lot of confusion among the passengers resulting in a rough argument between them and the bus supervisors or the operators. Again having no government authority to take control or keep an eye over the whole scenario, the private sectors are creating a monopoly, taking control over the public transport and autocratic raise in bus fare. The tracking and ticketing systems using RFID can be merged to solve the prevailing problems. Even though the GPS based system can be designed, we propose the RFID based tickets for its low cost, easy operation, portability, durability, reliability and being much more user friendly. Also the high speed RFID tags and detectors make the tracking system of a running bus merely a child's play. Public carrying RFID based electronic tickets will have access to any bus service of the city only entering his current

Location and his destination on the keypad attached to every bus. The data will directly be transferred to the server main database and the equivalent credit will be stored in the corresponding bus account. By using this automated system will save time, have a higher authoritative inspection and reduce chaos and confusion on the road.

II. LITERATURE REVIEW

The long queues at railway ticket counters, especially on weekends and holidays. As traditional paper tickets, you lose them, you're in trouble. Coupon Validating Machines (CVMs) were introduced to decongest the booking counter. Here, passengers have to purchase a booklet (worth a maximum of Rs. 50) from the counter consisting of various denominations (Rs. 1, Rs. 2, Rs. 3, etc.) of coupons which have to be validated by inserting into the machine, which consumes time

depending on total fair. Again for purchase of coupon booklet there will be queue process and passenger will have to check for fair amount from charts will take time. ATVM (Automatic Ticket Vending Machine), currently there is Smart Card operating Machine.

This card will cost an initial amount of Rs.100, from which the first time usable amount will be Rs.52 to get tickets from ATVM machine and some Rs.30 is balance amount is kept by Railway as one time security deposit (Refundable).Source ,destination and other details have to be entered which consumes time.
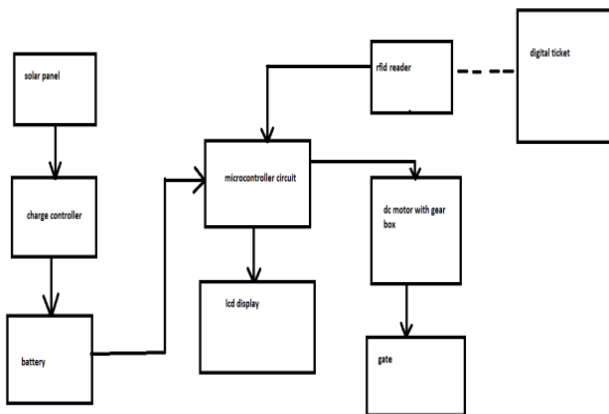
III. CONCEPT

Figure: RFID based railway ticketing and security system using solar energy.

The solar panel works on dc volt. The charger is attached to the solar panel and to the battery for the protection purpose because the sun intensity of light keeps on changing so the solar panel voltage will also change this leads to the battery damage because if the sun intensity is high more amount of voltage will pass to the battery than it is required to charge the battery. In the night time there will be no sunlight so the battery starts discharging in that case the battery voltage will flow in reverse direction and if the battery voltage move towards the solar panel the solar might gets damaged. So for the protection to the battery and the panel this charge controller circuit will be used.

The battery supply will be passed to the microcontroller circuit. In the microcontroller circuit the programming will be installed. The microcontroller here it means the mini computer. The RFID reader is reader that will be used to read the digital ticket information wirelessly. If the passenger moves towards the train he is not required to read the seats no. on the train's bogie and waste his or her time in finding the exact bogie. If the passenger just hold the digital card in his hand and if the digital tickets card information say for a seat no. matches with the respected bogie then sound will be generated from the bogie and LCD display will display the seat no. and "welcome dear passengers" message will be displayed on the LCD and the door will be opened automatically. And when the passenger enters the boogie the gate will be closed automatically. The motor dc attached with gear box will easily open and close the door.

IV. CONCLUSION

As the digital way if reading the ticket information is possible through the RFID based technology and only the ticket validation sis confirmed then only the gates will be open so this technology is feasible will be used in railway as the whole circuit runs on supply of totally running on ac supply. So the electricity consumption of railway is very less as the consumption here is only 12volt dc instead if 230v ac.

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