

AUTOMATIC TOLL COLLECTION AND ANTI THEFT ALERT SYSTEM USING RFID AND MICROCONTROLLER

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Abstract - The automated toll gathering system using dormant Radio Frequency Identification (RFID) label ascends as a convincing response for the manual toll gathering method used at tollgates. Time and profitability involve need of present day.

With a particular true objective to crush the main problems of vehicle blockage and time usage RFID advancement is used. RFID per client settled at tollgate plot (or even a hand held per client at manual way, if RFID marked vehicle enters manual toll paying way) scrutinizes the name joined to windshield of vehicle.

The article acknowledgment sensor in the scrutinize distinguishes the system of the moving toward vehicle's tag and toll thinking occurs through a prepaid card doled out to the concerned RFID tag that has a place with the proprietors' record. This makes tollgate trade more supportive for the open utilize. Watchwords: ARM7, RFID TAG, RFID Reader, GSM/GPRS, Buzzer, LCD, KEIL μ Vsion4, Proteus 8.0, Flash enchantment.

Key Words: ARM7, RFID TAG, RFID Reader, GSM/GPRS, Buzzer, LCD, KEIL μ Vsion4, Proteus 8.0, Flash magic

1. INTRODUCTION

In our day by day life toll door assumes a noteworthy part while voyaging vehicles will pay some measure of duty through toll court to the legislature in the shape money. Increasing vehicles count on highway and toll tax collecting from them as they pass but it is very tedious process of manual system. It is time devouring therefore there is a long line of vehicles to pass the toll square. Modernization of transport end up plainly basic sign for urban ranges, fundamentally it raises the vehicle check. Congestion on roads eventually results in slow moving, by this waiting time is increases at toll plaza..

1.1 Manual Process

Manual Prepare Manual toll accumulation is most broadly utilized gathering technique in India. It requires a toll gatherer or orderly. Manual approach is the most conventional approach for gathering charging or toll collection.

According to the manual toll collection methodology, a driver stops at a charging booth, driver pays the required fee directly to a collector. According to the characteristics and

classification the amount will be paid by each vehicle. The purpose of toll tax collection is to recover the total capital outlay. This total capital outlay includes the cost of repairs, construction, upkeep, costs on toll operation and in view of the vehicle classification, cash toll is received by the collector.

The authority, who additionally apportions change, may acknowledge and offer scrip, tickets, coupons, making a passage of the vehicle in the framework and issuing receipt to the supporter . Because of manual mediation, the processing time is highest, change problem is there. _ Fig 1:



Fig 1: Manual Toll collection

1.2 Automation Process

To conquer the major issue of vehicle congestion, time consumption and reduce the manual power, long queues at toll booths

we propose a system called automatic toll collection system and anti-theft alert system utilizing RFID innovation which the RFID labels is settled on vehicles and RFID perusers put at toll stall. What's more, it can help in vehicle robbery location and in addition nonstop checking of activity.

This technology is meant for smooth flow of traffic in efficient, faster way and intended to help the RTO department, police department and public transport. By this we don't need to convey a great looking measure of money with us identifies with security

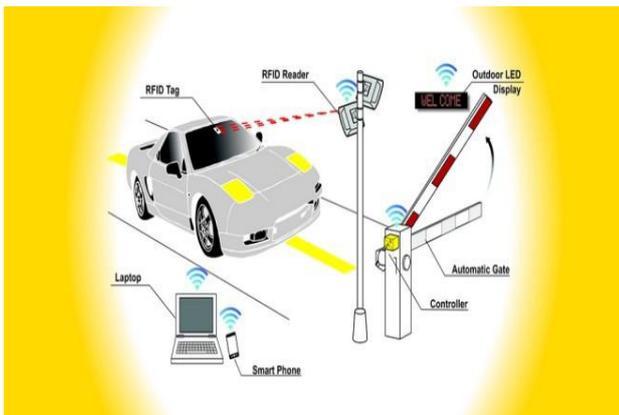


Fig 2: Automatic Toll collection

2. APPROACH

2.1 HARDWARE IMPLEMENTATIONS

In this project, we deal with the simplification of procedure followed by the passengers to pay tax at toll accumulation booths, like making an automated toll collection system, vehicle burglary detection. All these actions are done utilizing a single shrewd card (RFID label), along these lines sparing the endeavors of conveying cash and records physically. The RFID per client mounted at toll stall will read the paid ahead of time RFID labels put on vehicles. At the point when vehicle approaches at toll court, the radio recurrence transmitted from the receiving wire and it actuates the transponder. The transponder broadcast the signal back to the lane antenna with some information that will be transferred to the central database. Since every vehicle registration ID is connected to clients account, toll can be deducted from the ledger straightforwardly. At the point when vehicle is stolen the proprietor registers objection on the site with its enrollment ID and exceptional RFID label number. Now when stolen vehicle passes by the toll plaza, the tag fixed on it matches with the stolen vehicles tag in the database at the toll booth then it automatically stops the vehicle. Buzzer will be alarm and also SMS is sent to authorize mobile number, registered police station with specifying RFID number using GSM module. LCD display will display the stolen vehicle is present. The main hardware components are ARM7, RFID, GSM/GPRS, Relays, Motor and Buzzer Fig3: Block Diagram 2.2

The main hardware components are ARM7, RFID, GSM/GPRS, Relays, Motor and Buzzer

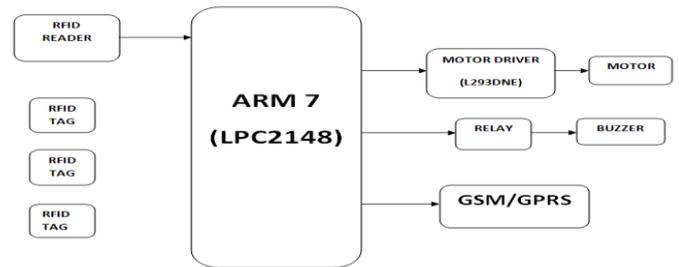


Fig3: Block Diagram

2.2 SOFTWARE IMPLEMENTATIONS

Installed frameworks writing computer programs is the programming of an implanted framework in some gadget utilizing the allowed programming interfaces given by that framework. We can extensively characterize an inserted framework as a microcontroller-based, programming driven, dependable, continuous control framework, intended to play out a particular undertaking.

It can be thought of as a computer hardware system having software embedded in it. An implanted framework can be either a free framework or a piece of a huge framework.

Software tools used in this project:

1. Keil software
2. Flash magic
3. Proteus

3. CONCLUSIONS

The electronic toll collection structure in interstate in view of RFID, a blueprint plan was progressed.

It has characteristics of insignificant exertion, high security, far correspondence partition and high efficiency, et cetera. It not simply can upgrade development level of charge, also improve segment limit of interstate. Electronic toll gathering system is an intense measure to diminish organization costs and charges, meanwhile, phenomenally diminish clutter and poison radiation of toll station.

In the configuration of the proposed Electronic toll accumulation (And so on) framework, continuous toll accumulation and hostile to burglary arrangement structure have been arranged. This reduces the physical work and concedes that consistently occur on avenues. This plan of social occasion tolls is eco-obliging moreover achieves extended toll way restrict.

Likewise, an against burglary arrangement framework module which counteracts going of any defaulter vehicle is executed, hence guaranteeing security on the roadways.

4. ACKNOWLEDGEMENT

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The modernized toll gathering system using dormant Radio Frequency Identification (RFID) label ascends as an influencing answer for the manual toll gathering procedure used at tollgates. Time and efficiency involve need of present day. Creators might want to thank all associations for their earnest consolation, support and help with the advancement of the programmed toll gathering and hostile to burglary ready framework. The creators might want to accept this open door to say thanks to them for their commitments towards refining enhancing the framework towards a superior item

5 REUSLTS

Our Approach was deployed with RFID module in order to collect the toll collection automatically and anti-theft alert system. The working of the automatic toll accumulation framework with its segments. These parts may fluctuate contingent on the innovation utilized. As the vehicle enters the toll path, sensors (1) recognize the vehicle. (2) peruses a transponder (3) mounted on the vehicle's windshield. As the vehicle goes through the way out light drapery (4), it is electronically ordered by the treadle (5) in light of the quantity of axles, and the ATC record is charged the best possible sum. Criticism is given to the driver on an electronic sign. Additionally, the web application also presents charts with the vehicle details, account details. The below figure shows the proposed model kit placed near toll plazas

When we turn on the power supply, it LCD display gives "Waiting for Vehicle". Then we need to show the RFID tag to RFID reader module to get the details of the vehicle and it detects the required amount from authorized person bank account and also it sends a message to owner mobile number using GSM SIM900a. It also automatically updated in webpage using GPRS. If any theft vehicle was found the toll gate cannot opened and also it sends SMS to authorized persons. This figure is shown below



Fig 4 : Output of Proposed model

Account details:

Website for gprs server is www.gprserver.in

Account name: logmits@gmail.com

Password: XXXXXXXXXX

Device name: logmits

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