

A NOVEL APPROACH FOR AUTOMATING VEHICLE VERIFICATION AND TRACKING

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Abstract – In the Transportation field, there are so numerous paper documents to be kept up for each and every vehicle. Every vehicle proprietor must carry all the overhauled records of the vehicle with them whereas driving on the open roadways. It is very difficult for an individual to carry all the archives such as RC book, insurance subtle elements and more along side them always. In the event that the driver overlooks to require any one of those documents, he will got to grant overwhelming fines. There is additionally a issue of robbery of those documents or the documents may be misplaced or harmed due to climate condition or as time passes.

Through this Venture "RFID BASED VEHICLE IDENTITY VERIFICATION AND TRACKING", all the reports of a vehicle can be accessed electronically utilizing an RFID chip implanted in the vehicle. The chip contains an distinguishing proof number to uniquely identify each vehicle, and with the assistance of a extraordinary reading device, utilizing the distinguishing proof number reports of the vehicle can be recovered. The peruser is associated to a secure server which stores all the vehicle reports and brings all the information almost the vehicle like RC book, proprietor subtle elements, smoke test subtle elements, and more and shows on the reader's show. The user will moreover get a notice approximately the close of each of the documents to their contact number. The chip can moreover be utilized to track stolen vehicles by the specialist.

Key Words: vehicle tracking, internet of things, radio frequency identification

1. INTRODUCTION

The innovation has developed in later a long time in many fields such as communication, restorative, transportation etc. All the gadgets that we are utilizing is savvy making our life easier and quicker. Like all other areas, the transportation field has also progressed and one of the most cases is the GPS system in vehicles and activity control systems. The engine vehicle populace in Kerala, which was around 7.9 lakhs amid an overview in 2015-2016. Around 1 lakh vehicles are included to this every year. As per the transport policies of Kerala, each vehicle ought to need to maintain some documents like RC book, Pollution control board certificate etc. ALL the records are within the frame of papers and got to be carried continuously with the vehicle on open roadways. But it is very troublesome for a individual to

carry the vehicle archives such as RC book, protections points of interest, together with them continuously. In the event that they forgot any one of the records amid the police checking, it will lead to paying overwhelming fines.

The proposed framework "RFID BASED VEHICLE VERIFICATION AND TRACKING" is making a difference both review group and vehicle proprietors. All vehicle records are open utilizing a single RFID tag. The tag contains an recognizable proof number to uniquely recognize each vehicle, and with the assistance of a special reading gadget, the personality number of the vehicle is pursued.

The proposed framework "Mechanized Vehicle Identity Confirmation and Tracking" is helping both examination group and vehicle proprietors. All vehicle reports are open utilizing a single RFID tag. The tag contains a recognizable proof number to interestingly recognize every vehicle, and with the assistance of a unique understanding gadget, the personality number of the vehicle is perused. The per user is associated with the server, and fetches all the data about the vehicle like RC book, proprietor subtleties, smoke test subtleties, and more and show it on the per user's show. The review group can without much of a stretch comprehend and checking all pertinent data of both vehicle and its proprietor.

2. IMPLEMENTATION

The RFID based frameworks give a robotized recognizable proof technique. A RFID tag is an electronic gadget that can be joined to or consolidated into an item, creature, or individual with the end goal of recognizable proof utilizing radio waves. Chip based RFID labels contain silicon chips and reception apparatuses. All the vehicle reports are put away on a database server that can be effectively distinguished by utilizing the novel ID given to every vehicle. The RFID per user and the framework module assists with perusing the ID and looks the database for related archives. The records are gotten and are shown on the per user's show unit in which the checking authority can basically confirm each report electronically. In this manner, it takes substantially less time than the manual archive check and the clients need not convey all the vehicle-related records alongside them. Here, there won't be any issue if any of those archives have been overlooked since every one of the records and papers are put away in the database which can be effectively open. This decreases the time wastage of manual record confirmation and encourages smooth traffic stream. This Project utilizes RFID innovation.

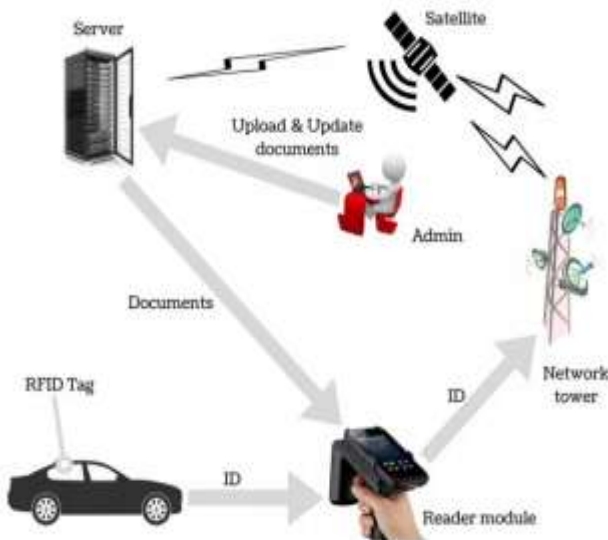


FIGURE -1: Implementation View

RFID, Radio Frequency Recognizable proof is the utilization of radio waves to peruse the data put away on a label appended to an article.

2.1 RFID TAG

A tag can be peruse from a separation, and it shouldn't be inside direct view of the per user to track the object. There are two sorts of RFID labels that are generally utilized, dynamic and uninvolved. In dynamic RFID frameworks, every single tag has its own specific transmitter and force source. In a large portion of the cases, the force source is a battery. In latent RFID frameworks, the per user sends a radio sign to the tag with the assistance of the per user reception apparatus. The RFID label utilizes the transmitted sign to control on, and reflect imperativeness back to the per user.



FIGURE -2: RFID Card

2.2 RFID READER

A RFID scanner could be a device wont to read the knowledge hold on within the info victimization the distinctive number of RFID tag, that is employed to trace individual objects. In RFID, radio waves square measure won't to transmit knowledge from the tag to a reader. The RFID tag doesn't need to be scanned directly and doesn't need line of sight to the reader. The RFID tag should be among the vary of associate RFID reader. RFID technology is

employed in several things to quickly scan and allows quick identification of a selected product.



FIGURE -3: RFID Reader

2.3 RASSPBERRY PI

Raspberry Pi is a little Mastercard like a Minicomputer which has practically every one of the functionalities of a PC. It has the Qualcomm processor with better preparing ability, Slam, info and yield ports like the USB ports and show connector ports (HDMI) and other important ports. The Raspberry Pi has extraordinary models, which have various determinations and execution. Some model has inbuilt remote availability like the Wi-Fi and Bluetooth which permits interfacing with a organize effectively. The raspberry pi 3 model is utilized to build up the per user unit alongside a touchscreen interface to speak with the per user module. The pi can have any sort of working frameworks like Windows, Linux, Android and so on.

The Android working framework is utilized as the essential working framework for the per user gadget. With the inbuilt USB network include, the RFID per user gadget can essentially interface with the pi. An Android application is created to interface with the equipment and the database servers. The inbuilt network strategies will help to interface the per user gadget to the remote system. The figure Fig. 3. Shows the raspberry pi smaller than normal PC.



FIGURE -4: Raspberry pi

2.4 SERVER

A server is a gadget that gives usefulness to different projects or gadgets and can give administrations to different frameworks. The server used here have 500GB of extra room and 8GB of Smash for smooth activity. The servers are utilized to store the information on a cloud stage. Every one of the reports are put away on a database server which can be remotely gotten to by the specialists. There are three kinds of clients that work with the database server.

2.4.1 USER

The client can demand for new enlistment. When a client purchases another vehicle, or for RC transforming, they demand for new enrollment to the overseers typically the vehicle division which handles all the enrollment exercises. The client demands for new enrollment along with the individual subtleties and vehicle subtleties. The administrator at that point doles out a one of a kind ID to the vehicle. The ID is put away on RFID labels and glued on the vehicle. The client can likewise demand for the restoration of reports. The client will get advised on the enrolled contact number by the informing administrations when the archives restoration is vital. In this way the client can without much of a stretch handle the archive refreshing.

2.4.2 VERIFICATION AUTHORITY

The checking authority gets to the gadget with the intuitive application with a login procedure confirming the username and secret phrase of the power. The username furthermore, passwords for authorities are physically given by administrator. After login to the application, the RFID per user will get actuated and a safe association with the database server is set up. At the point when the vehicle goes close to the per user the ID is gotten and sent to the database.



FIGURE -5: Login page

The vehicle number alongside the client subtleties will be appeared on the showcase unit. The records that have been put away in the database can be gotten and can without much of a stretch access by the accessible alternatives.



FIGURE -6: Home Page

On the off chance that any report needs any refreshing or on the other hand have any issue, the checking authority can without much of a stretch report it and the fine can be concluded effectively. The home page of the Android application is appeared in Fig. 6. The fundamental subtleties of a vehicle are appeared on the landing page and the authority can choose the record from the given rundown. In the event that the report is obsolete or has any issue, it shows a red imprint close to the record. Moreover, the taken vehicles can be effectively recognized and answered to the proprietors. In this manner the taken vehicles can be effectively recuperated.

2.4.3 ADMIN

The administrator can see the rundown of clients and deal with the records of specialists. The administrator can include new confirming authority and allot get to benefits, for example, username also, passwords for validation, include new clients and dole out the novel ID to every vehicle, transfer all the vehicle records, update the reports and oversee them adequately. On the off chance that the vehicle is feeling the loss of, the administrator refreshes the vehicle subtleties and imprint the vehicle as a lost vehicle. With this field, the lost vehicles can be distinguished.

3. WORKING

The minicomputer Raspberry Pi is utilized to create the per user gadget and an android application is created to interface with the per user gadget. JAVA programming can be used to program the Android application. JAVA language is profoundly compelling for the vast majority of the cell phones. PHP Hypertext Preprocessor) is a broadly utilized open-source scripting language that is appropriate for web improvement and can be inserted in HTML. The PHP language is utilized on the server side to deal with all the approaching demands and to recover the put away reports and subtleties. At the point when the vehicle goes close to the per user gadget, the RFID peruser module on the peruser gadget peruses the ID and send to the database server. The association with the database servers is built up by the web network on the peruser gadget. The peruser has a radio wire which can change over electrical flow into electromagnetic waves. The EM waves, at that point transmit to the tag and the label radio wire catches the sign furthermore, sends back an EM wave which contains the ID put away on the tag. All the related reports that are spared in the database got and stacks into the peruser gadget. The HTTPS convention is utilized to set up the safe association with the database servers and the FTP convention is utilized to transmit the field from the server to the peruser gadget. The checking specialists would then be able to check the archives. On the off chance that the vehicle is a taken vehicle, at that point it is featured on the peruser gadgets show unit. Consequently the taken vehicles can be effectively distinguished. To refresh the archives, the client solicitations to refresh the reports like the smoke test, RC and so forth., The dependable specialists will refresh the reports to the database servers.

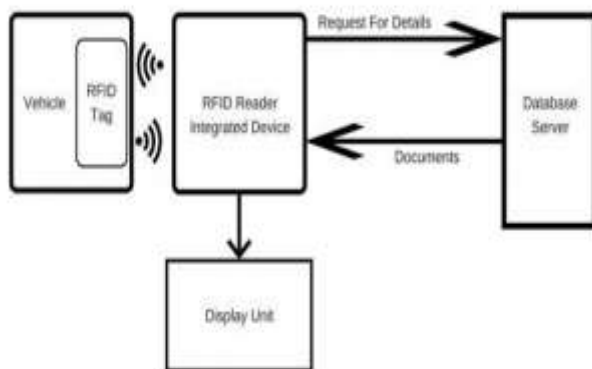


FIGURE -7: Block Diagram

4. CONCLUSION

The proposed system can achieve smooth traffic flow and faster document verification. This will save a lot of time for the manual document verification done by the verifying officials. Also, the stolen vehicles can get easily identified by the proposed system. The system is both helpful for vehicle owners and verifying authorities.

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