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USE OF RFID IN THE DOCUMENT VERIFICATION OF THE VEHICLES

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Abstract

The manual checking of the vehicles for the document verification by the police officials is quite tiresome and not a fool proof system and this system also leads to corruption because often bribe is paid for any discrepancy in the documents. So there is need of an automatic system for the checking of the documents. In this research paper such a checking system has been proposed which is based upon the Radio Frequency Identification (RFID). In this system a RFID detector or scanner will be installed on both sides of the road through which the vehicles are passing near a Naka or barricading or check post of the police officials. All the vehicles will be carrying a RFID tag on both sides of the vehicle and also on the windshield so that the RFID can be read from the three sides. This RFID tag contains all the information about the vehicle's required documents information. Any discrepancy or invalid documents carrying vehicle will be stopped for the checking. Thus this technology will help to check each and every kind of vehicle with accuracy and this will help the police or the checking authority to work in a stress free manner without negligence. This technique will also help to develop a corruption free system.

Keywords: *Discrepancy, Document, Police officials, RFID, Tiresome, Vehicle, Scanner, Detector.*

I. INTRODUCTION

The term RFID stands for Radio Frequency Identification, as the name defines the operation of the device is based on the Radio frequency signals. The RFID systems consists of RFID Reader and a tag which is normally used in identification and tracking of objects. Before discussing more about the RFID, let's see the uniqueness of this technology and its general application. Today in most cases barcodes are used for identifying an item in a warehouse or a supermarket using a barcode scanner, this existing system can be upgraded with the RFID technology [1]. Similar to barcode the RFID can also give unique identification number to all products but the added advantage is unlike the barcode system's line of sight, this system can

detect the RFID tag within its proximity range. Meaning you do not need a human to search for the barcode and point the barcode scanner on it. With this feature most of the system can be automated and human intervention can be minimized because the tag can be scanned and billed automatically when it reaches the RFID reader. RFID door locks and RFID attendance system are very popular now days and many hotels provide RFID tag to their customer to lock and unlock the door.

II. TYPES OF RFID SYSTEMS

The RFIDs are broadly categorized into two types mainly based on the type of RFID tag used. The two systems are called Active RFID system and Passive RFID system [2].

1. Active RFID system: The Active RFID system has active tags which are powered up with a power source (a battery). So the active tags are capable of radiating their own Radio frequency signals to transmit the data that contains in the microchip, without depending upon the Reader's signals to power up [3]. The active RFIDs are typically categorized under UHF RFID which has detection range up to 20 meters. These active tags are further categorized into Transponders and Beacons.

2. Passive RFID system: This is the most commonly used type of system that you can find in ID cards, banking cards etc. It consists of passive tags which doesn't have any battery to power up the chip in the tag [4]. Instead the Reader transmits the RF signals which are detected by the tag. These RF signals induce current into the tag's antenna which is then used to power up the chip. Then the tag responds with the data in the chip through the coiled antenna which is detected by the Reader and respective action will be performed. These are generally seen in maintaining attendance systems at offices and colleges.

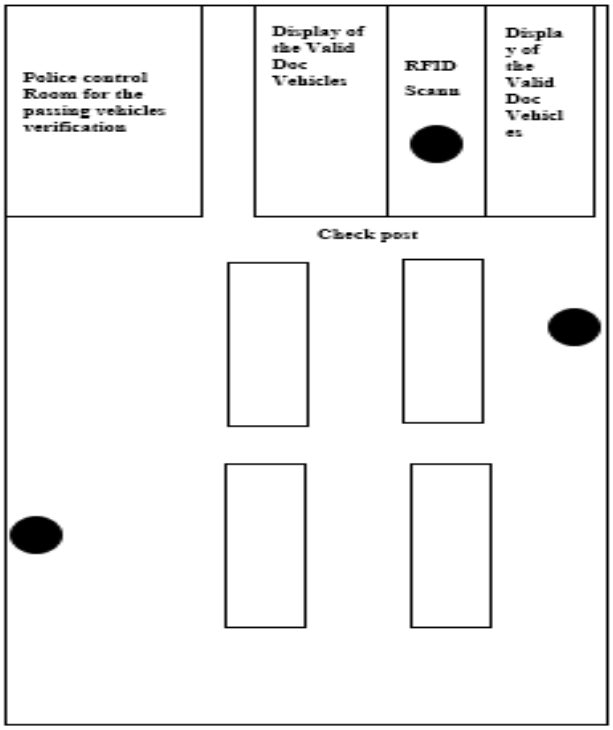

Fig. 1 Shows the check post view with automatic checking system

Document Verification of the vehicles: For the verification of the documents of the vehicles traffic police officials are deployed. Then the documents required for the vehicle like registration copy, pollution certificate, insurance certificate and the license of the driver are checked by the traffic police by installing the barricading on the roads, interceptors are also used for the speed violators to check the speed of the incoming vehicles [5]. Checking of the documents one by one takes a lot of time and this system is also not so much fool proof because drivers can produce the fake documents not issued by the issuing authority and officials do not have much time to verify the same. All the vehicles passing through the barricading cannot be checked also which also seems to be a biases system because some defaulters are spared and some persons who by chance forget the hard copies of their documents are not spared even once in their driving experience so there is need to develop a unbiased system for the checking system so that no one can be spared and also there is no need to carry the hardcopies of the documents of the vehicles.

III. METHODOLOGY

The RFID technique for checking the documents has been shown in the flow diagram in figure 1. In this technique the RFID tag will be pasted on the right, left and windshield of the vehicle. This tag contains all the information about the documents required for a vehicle like registration of the vehicle, its valid date, registered number of the vehicle, owner information, Pollution

certificate information, vehicle insurance details [6]. The scanner for the RFID tag of the vehicle will be installed on the three sides of the road or the barricading area through which the vehicles are made to pass. Vehicle numbers will be shown on the display with different colors. Vehicles with green color are having all the valid documents and the vehicle with red color will be stopped and automatic challans will be generated for those vehicles and further checking for that vehicle can be done. But as the license of the driver cannot be scanned by the scanner because it is not specific who is driving the car so it can be checked manually on the scanner within seconds. The RFID tag information will be retrieved through the online system as these RFID tags will be linked with an online application where all the information about the vehicle documents will be updated each time a new document is issued.

IV. RESULTS & DISCUSSION

The technique for the verification of the documents of the vehicle using RFID technique will help the police officials and every vehicle will be checked with accuracy and automatically with the help of the computer. The license of the driver can be checked on a handheld scanner within seconds. So, it will help to save a lot of time. The toll gate RFID tags can also be used for the same purpose[7]. All the information of the documents issued by the government like registration copy of the vehicle, license will also be automatically stored in the RFID tag or new RFID can be pasted. This system will help to detect the stolen vehicles as the scanners can also be installed on the roads where barricading is not even done to secretly check the movement of the vehicles by the police so it will reduce the manpower required and the system of checking will also be fool proof.

V. CONCLUSION

The RFID system of checking will be a big success for the automatic checking of the vehicles for their document verification. It will help to save a lot of time spent in the checking and manpower required for the same. No one will be spared running vehicles with invalid documents, stolen vehicles can be traced with this system easily. History of the travelling of the vehicles can be traced which will get stored in the online application of the vehicle which will also in the servicing of the vehicle and the insurance company. In case of accident of the vehicle details can be checked through this tag easily. Challans generated can be sent to the application and can also be filled online. In case of court case the persons have to appear before the court on the date mentioned in the application. So this system will help in adopting an eco-friendly system with minimum paper wastage.

VI. REFERENCES

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