

TRAFFICPOLICE MANAGEMENT USING QR CODE

Vipul Ghare¹, Saish Karne², Soham Desai³, Dr Makrand Shahade⁴

¹ Scholar, Department Of Computer Engineering, JSPM's RSCOE Pune

² Scholar, Department Of Computer Engineering, JSPM's RSCOE Pune

³ Scholar, Department Of Computer Engineering, JSPM's RSCOE Pune

⁴ Assoc Prof, Department Of Computer Engineering, JSPM's RSCOE Pune

¹vipulghare1122@gmail.com, ²saish.karne28@gmail.com, ³sohamdesai20@gmail.com,
⁴manu1509.shahade@gmail.com

Abstract

In this project, System mainly focuses on traffic police management for no need to carry the document of vehicles. Here, System Use QR code technique for the documentary purpose. In this system, the main actor is retailer, traffic police, department police. Through this actor our system become very helpful to user also and government also. Now a day's Vehicle security is an important issue in our society. for improving methods of vehicle security in public and private places. When the license plate number is missing or unknown then how to find the vehicle information is really a big challenge. A QR code-based system that will help in identifying the vehicle in public or private places like Traffic signal and Society, buildings, parking respectively is been proposed to overcome the above issue. This quick and robust system will propose to detect and describe features of a vehicle image, specifically in an android application using QR code mounted on vehicles. After description of QR code it fires the query on database for searching information in the database. Real time android applications are the real challenges for this system. Hence, by this for tracking vehicle and tracing it is going to become comparatively easy task for the people who may or may not be technically competent.

Keywords- Traffic police, automatic traffic enforcement cameras, business intelligence.

1. Introduction

The QR (Quick Response) Code system was developed in 1994 by Denso Wave. It has 40 versions, error correction level are four, hence it will be more beneficial than barcode. By using the method for correcting error at highest level allows up to 30 per recovery of the words of symbol code. QR code can be categorized into two-dimensional barcode or matrix barcode. This technology is useful for our developing system. The main purpose of QR code is, it uses in the system like vehicle identification. This technology is helpful in situations where the license plate number is missing or GPS tracking is not available. In our system QR code has stored the information about vehicle like Owner name, Address of vehicle owner, VIN No, Contact No. etc.

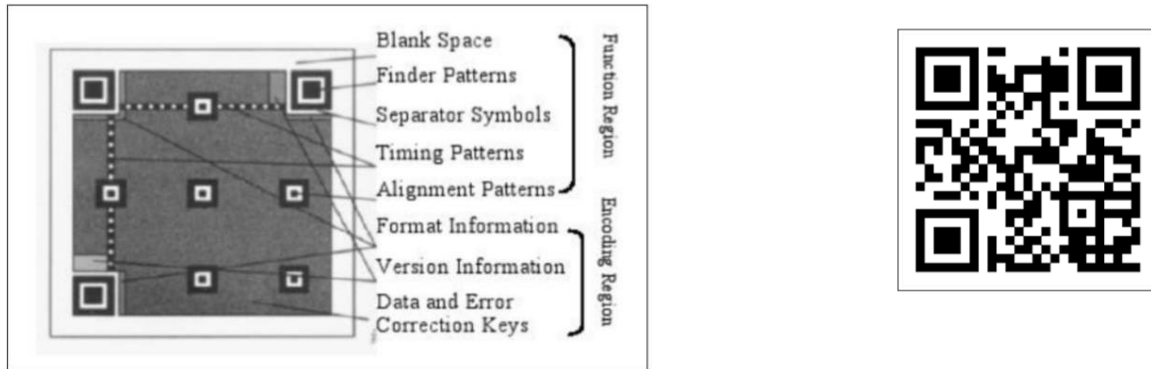
Types of QR code:

QR codes can be categorized into two types, namely, the micro and standard QR code. Storing capacity of these codes is been standardized. Small amount of storing possible to make your own QR codes is the main feature of micro QR codes. High amount of QR coding capacity is present in Standard QR code.

- Standard QR code
- Micro QR code

In our System we are using standard QR code which is shown in below figure.

Structure of QR code



The fig. depicts the symbol of QR code is of some square modules which consists of square array. For the encoding data a function region may not be used. Blank space surrounds the symbol. At three corners finder patterns are located.

ALGORITHM

We are going to use Advanced Encryption Standard Algorithm for Encrypting the details for Vehicle and Vehicle Owner before hiding the data behind the QR Code.

Information of Advanced Encryption Standard Algorithm

Advanced Encryption Standard (AES) is the most popular and adopted Algorithm. This Algorithm is much more fast than the triple DES. As the key size of DES was too small, replacement was needed. Exhaustive key search attack against this algorithm is vulnerable with increasing computer power. Triple DES was found slow which was designed to overcome this drawback. Over Feistel cipher, AES has an iterative approach. Bytes rather than bits computations are performed by AES. Thus, 16 bytes is treated as 128 bits of a plain text block. For processing as a matrix these 16 bytes are arranged in four columns and four rows. Encryption-process in the reverse order is equivalent to the process of decryption of an AES ciphertext. Four processes are conducted in each round in the reverse order

- Add round key
- Mix columns
- Shift rows
- Byte substitution

The encryption and decryption algorithms needs to be separately implemented, since sub-processes in each round are in reverse manner, unlike for a Feistel Cipher.

2. Literature Survey

RADAR: It is a tracking system and user location based on RF.

Author: V Padmanabhan (2015) Description and P Bahl. There is a growing interest in services and location aware systems due to devices. RADAR stands for Radio detection and Ranging. It is a type of radio system where signals used to determine speed or position of an object. It is used for different purposes like weather monitoring, speed enforcement, astrometry and military.

In Mobile ad-hoc networks GPS free positioning.

Author: J.P. Hubaux and S. Capkun, Maher Hamdi (2015)

Description: Node positioning in ad-hoc networks is the problem considered in this paper. The ad-hoc networks have infrastructure less setup, minimal and no reliance on Ad hoc networks used for ease, speed of deployment & decreased dependence of infrastructure. Applications include military environment, emergency operations, collaborative or distributed computing and symmetric or asymmetric variations.

CDMA: Cellular Systems Radio Location overview

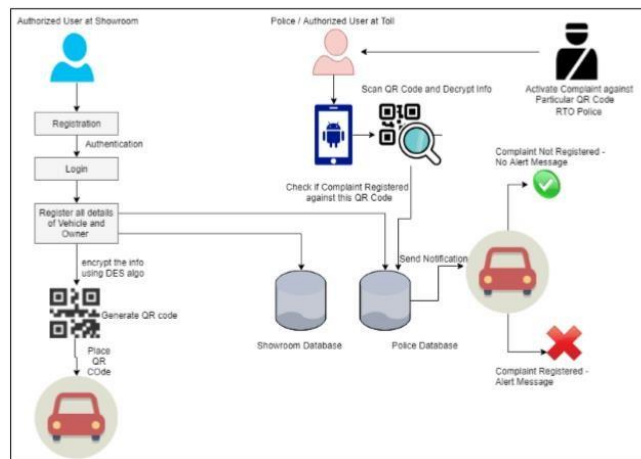
Author: Gordan L Stuber and James J. Caffer (2015)

Description: CDMA (Code division multiple access) Third generation mobile system communication standard where multiple users connected to the base station with same radio channel. It occupies single transmission channel Architecture includes mobile station, base station and network subsystem

PROPOSED WORK

The manual processes for checking the vehicle documentary through police is been proposed by us which replaces this current method. Users are suitable to carry documents. We are designing an Android + web application named “Detection of Stolen Vehicle through QR Code which will be beneficial for Police/Authorized persons at Toll Plaza to help for Finding Stolen Vehicles.

3. ARCHITECTURAL DESIGN



Data Design

All data structures such as global, internal, and temporary data structures, file formats, database design (tables) are described in this section.

1. Data structure of Internal software.

Protects the data confidentiality and integrity.

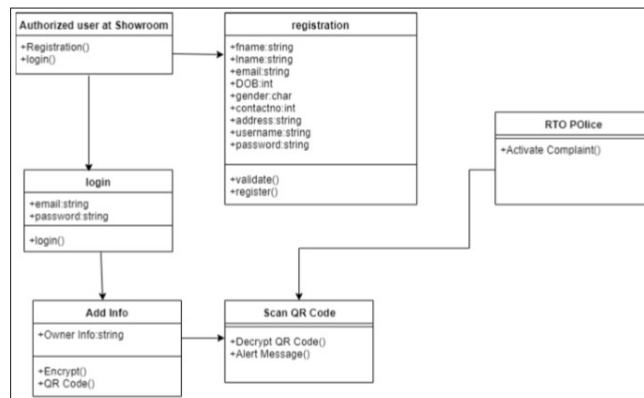
2 Global data structure.

No global data structure used 3 Data base description

As part of the application, database(s) / Files created/used is(are) described.

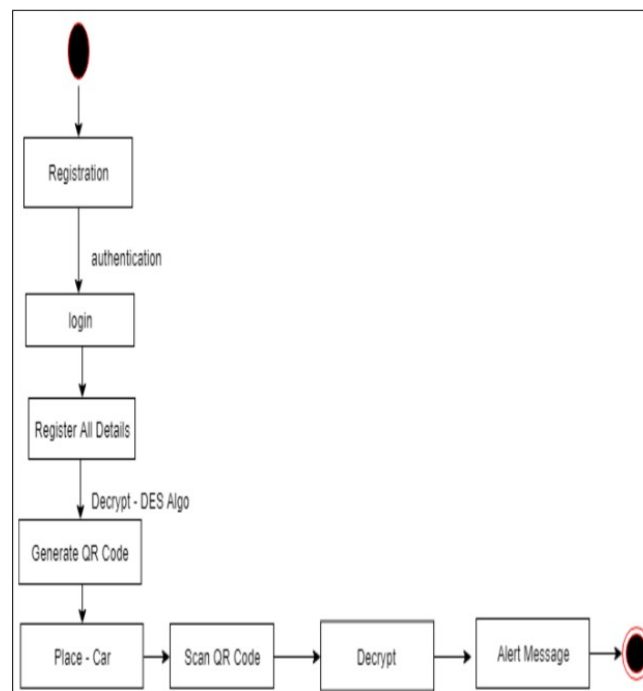
Component Design

Class Diagram

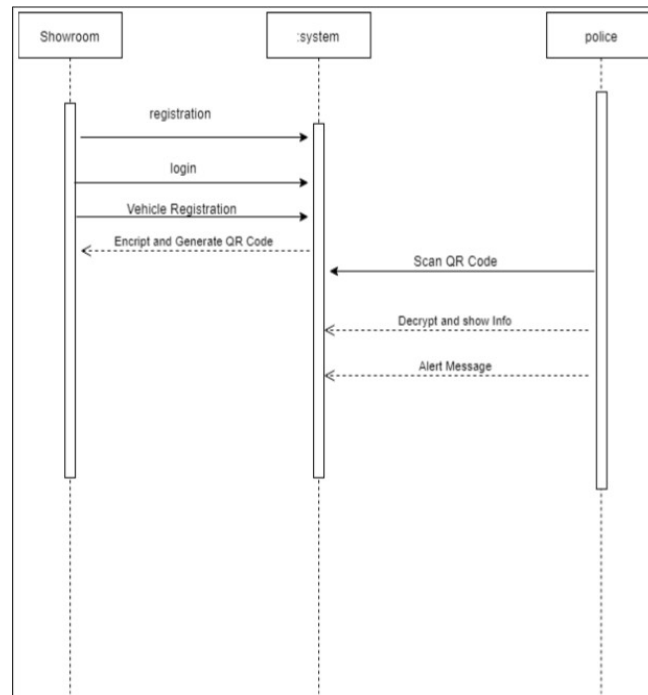


Activity Diagram

Activity diagram represents concurrency of the flow of activities, support for choice, actions and iteration of the workflows. Unified modelling language can use activity diagrams to describe the operational workflow and business workflow in a system. The overall flow of control is depicted by the Activity diagram.



Sequence Diagram:



4. Conclusion

It's not always necessary to carry important documents and license every time. Smartphone must consist of the QR code. The verification process is done reliably and efficiently by the driver using this system. for extracting the information through QR code QR code reader is used. A person can easily use their mobiles to capture QR code and implant the required message and gain prevalent data from QR code registering can be easily done by QR code in this system.

References

1. B. Hofmann - Wellenhof , H. Lichtenegger, and J. Collins, Global Positioning System: Theory and Practice, Springer-Verlag, 4th edition,1997.
2. P. Bahl and V. Padmanabhan, “RADAR: An in-building RF- based user location and tracking system ” in Proc. of Infocom’2000, Tel Aviv, Israel, Mar. 2000, vol. 2, pp.775–584.
3. N. Priyantha, A. Chakraborty, and H. Balakrishnan, “The cricket location-support system,” in Proc. of International Conference on Mobile Computing and Networking, Boston, MA, Aug. 2000, pp. 32–43.
4. C. Savarese, J. M. Rabaey, and J. Beutel, “Locationing in distributed ad-hoc wire-less sensor networks,” in Proc. of ICASSP’01, 2001, vol. 4, pp.2037–2040.
5. A.NasipuriandK.Li, “A directionality based location discovery scheme for wireless sensor networks,” in First ACM
6. International Workshop on Wireless Sensor Networks and Applications, Atlanta, GA, Sept.2002.
7. S. Capkun, Maher Hamdi, and J. P. Hubaux, “GPS-free positioning in mobile ad-hoc networks,” Cluster Computing, vol. 5, no. 2, April2002.
8. Phaisaran Sutheebanjard, Winchain Premchaiswadi, “QR-Code Generator,” 20 January2011

9. Raed M. Bani_Hani;Yarub A. Wahsheh,Mohammad B.Al-Sarhan,” Secure QR code system,” 18 December 2014
10. Sumit Tiwari,”Introducton to QR code Technology” 03 July 2017.