

**A PROJECT REPORT ON**

**TRAFFIC POLICE MANAGEMENT AND DETECTION  
OF STOLEN VEHICLE USING QR CODE**

SUBMITTED TO THE SAVITRIBAI PHULE PUNE UNIVERSITY ,  
PUNE IN THE SUCCESSFUL IMPLEMENTATION OF THE  
REQUIREMENTS FOR THE AWARD OF THE DEGREE

**BACHELOR OF ENGINEERING  
(Computer Engineering)**

**BY**

Sachin More	71751700E
Kiran Dalvi	71725994D
Arsheed Alam	71333862J
Ashish Pawar	71803638H

**Under The Guidance of**

Prof. Madhuri M Dharanguttikar



**Sinhgad Institutes**

**DEPARTMENT OF COMPUTER ENGINEERING  
SKN SINHGAD INSTITUTE OF TECHNOLOGY AND  
SCIENCE  
KUSGAON (BK), LONAVALA 410401**

**SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE**

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**Sinhgad Institutes**

## **CERTIFICATE**

This is to certify that the Project Entitled

**Traffic Police Management and Detection of Stolen Vehicle using QR Code**

Submitted by

Sachin More	71751700E
Kiran Dalvi	71725994D
Arsheed Alam	71333862J
Ashish Pawar	71803638H

is a bonafide work carried out by Students under the supervision of prof. Madhuri M Dharanguttikar and it is submitted towards the partial fulfillment of the requirement of Bachelor of Engineering (Computer Engineering) Project.

Madhuri M Dharanguttikar  
Internal Guide  
Dept. of Computer Engg.

Project Co-ordinator

Prof. Ganesh Kadam  
H.O.D  
Dept. of Computer Engg.

External Examiner

Prof. M.S. Rohokale  
Principal  
SCOE.

## **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. Quick Response (QR) are the codes that are quite similar to the two dimensional barcodes which are basically used for storing data efficiently. These QR Codes are being vastly used in current scenario with the growing smart phone users using QR code scanners with the help of their devices. QR codes have gained vast recognition since it provides a lot of benefits. Driver needs to carry license or other documents at the time of driving and also feels the need to carry his RC book of his vehicle and other vehicle related documents but when rider forgets to carry his documents and is stopped by the traffic police then driver has to pay certain fines. In this paper we provide a system that eradicates the need of carrying several original documents driver can carry the QR code in his device. Using QR code the rider along with his documents gets authenticated

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. To overcome this issue, we are proposing Vehicle Identification System which is 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. 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. By using this system vehicle tracking and tracing is going to become comparatively easy task for the people who may or may not be technically competent.

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Sachin More	71751700E
Kiran Dalvi	71725994D
Arsheed Alam	71333862J
Ashish Pawar	71803638H

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# **CHAPTER 1**

## **SYNOPSIS**

## **1.1 PROJECT TITLE**

“ Traffic Police Management and Detection of Stolen Vehicle using QR Code ”

## **1.2 PROJECT OPTION**

Final Year Project

## **1.3 INTERNAL GUIDE**

Prof. Madhuri M Dharanguttikar

## **1.4 TECHNICAL KEYWORDS (AS PER ACM KEYWORDS)**

### **1.4.1 Categories and Subject Descriptors:**

- 1)QR Code
- 2)Automatic traffic enforcement cameras
- 3)Business intelligence

## **1.5 PROBLEM STATEMENT**

To design and implement a system for vehicle user which make easy to carry all vehicle related Document digitally using QR code so that user will not face problem during inquiry and detect stolen vehicle.

## **1.6 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 sytem,the main actor is retailer, traffic police, department police. Through this actor our system become very helpful to user also and government also. Quick Response (QR) are the codes that are quite similar to the two dimensional barcodes which are basically used for

storing data efficiently. These QR Codes are being vastly used in current scenario with the growing smart phone users using QR code scanners with the help of their devices. QR codes have gained vast recognition since it provides a lot of benefits. Driver needs to carry license or other documents at the time of driving and also feels the need to carry his RC book of his vehicle and other vehicle related documents but when rider forgets to carry his documents and is stopped by the traffic police then driver has to pay certain fines. In this paper we provide a system that eradicates the need of carrying several original documents driver can carry the QR code in his device. Using QR code the rider along with his documents gets authenticated

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. To overcome this issue, we are proposing Vehicle Identification System which is 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. 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. By using this system vehicle tracking and tracing is going to become comparatively easy task for the people who may or may not be technically competent.

## **1.7 GOALS AND OBJECTIVES**

- Our goal of traffic police system find out authorized user.
- Reduce The traffic police work to obtaining information about the vehicle.
- User does not need to carry their vehicle document every time.
- If person doing unauthorized task according to that generate fine.

- Detect stolen vehicle.

## 1.8 RELEVANT MATHEMATICS ASSOCIATED WITH THE PROJECT

### Inputs:

1. Ri for retailer
2. Ti for traffic police
3. Di for department of police

### Procedure:

Step 1:

Retailer first registration.

$R_i = (R_{i;1}; R_{i;2}; \dots; R_{i;k});$

Then QR Code generated

Step 2:

Traffic Police : The traffic police scanner scans the QR code.

$T_i = (T_{i;1}; T_{i;2}; \dots; T_{i;k});$

QR code generate the text file generate. Then finding authorized user to database.

### Procedure:

1. In this stage, the user or retailer creates new registration. Then generate QR code for that user vehicle information.

2. The Traffic Police F is scan the QR code. And it will generate text file for given QR code.

3.If Complaint is Registered against that QR Code then System will show Alert Message

### Output:

Traffic police scan the QR code; check the information of that vehicle in the system.

## **1.9 NAMES OF CONFERENCES / JOURNALS WHERE PAPERS CAN BE PUBLISHED**

- International Journal of Advance Research in Engineering Science and Technology (IJAREST).

## **1.10 REVIEW OF CONFERENCE/JOURNAL PAPERS SUPPORTING PROJECT IDEA**

International Journal of Advance Research in Engineering, Science Technology (IJAREST) is an on line open access journal, basically the aim of this journal to promote the new Innovative ideas in all fields of Engineering and Technology. Basically, this Journal will help to promote all Innovations in Engineering and Technology on one platform so that if anybody wants to integrate their ideas with other field of technology, they can implement it with the help of this Journal.

Its a leading e-journal, under which we are encouraging and exploring newer ideas of current trends in Engineering by publishing papers containing pure knowledge.

### 1.11 PLAN OF PROJECT EXECUTION

Sr. No.	Month Sheduled	Phase	Work Done
1	June-August	Topic Seraching	Topic Searched
2	August-September	Topic Selection	Topic Selected
3	August-September	Project Confirmation	Project Confirmed
4	August-September	Literature Survey	Literature Survey Done
5	September-October	Requirement Analysis	Requirement Analysis Done
6	September-October	Requirement Gathering	Requirements Gathered
7	November-December	Designing	Architecture Design
8	November-December	Designing Test	GUI Tested
9	November-December	Database Creation	Database Tested
10	January-February	Coding	Coded Different modules
11	January-February	Database And Module Connectivity	Connectivity Done
12	March	Testing of Project	Project Tested
13	April	Result Analysis	Result Analysis

## **CHAPTER 2**

### **TECHNICAL KEYWORDS**



## **2.1 AREA OF PROJECT**

Secure Network.

## **2.2 TECHNICAL KEYWORDS (AS PER ACM KEYWORDS)**

Traffic police, automatic traffic enforcement cameras, business intelligence.

### **2.2.1 B. General Terms:**

Security.

## **CHAPTER 3**

### **INTRODUCTION**

- The QR (Quick Response) Code system was developed in 1994 by Denso Wave. It has 40 versions, four levels of error correction, and the maximum symbol size hence it will be more beneficial than barcode. By using the highest level of error correction method allows up to 30 per recovery of the symbol code words. In addition to, QR Code has many advanced. QR code is type of matrix barcode or two dimensional 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 licence 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.

### **3.0.1 Types of QR code:**

There are basically two types of QR codes, namely, the micro QR code and the standard QR code. These codes have their own standard storing capacity. The micro QR codes have very small amount of storing possible to make your own QR codes. Capacity while the standard QR codes have high amount of QR coding capacity. With the sophisticated Reed-Solom Error Algorithm, it becomes possible to make your own QR codes.

- Standard QR code
- Micro QR code

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



Figure 3.1: QR Code

### 3.0.2 Structure of QR code

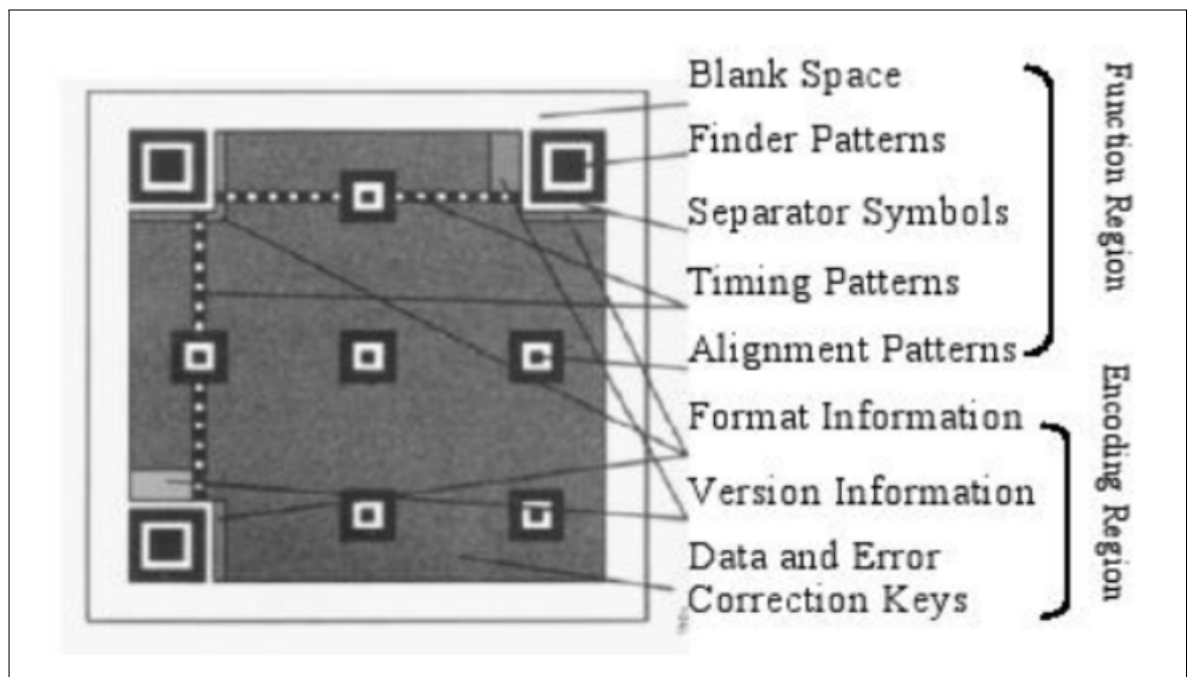


Figure 3.2: QR Code Structure

As shown in above fig. QR code symbol is square array which consists of some square modules. It comprises an encoding region and a function region shall not be used for the encoding data. The surrounding region of a QR code symbol is blank space. The finder patterns (includes three probing patterns) located at three corners

of the symbol intend to assist in easy location of its position, Size and inclination . There are separator symbols width as module between each probing pattern and the encoding region. All of them consist of light modules. The function of timing patterns is determining the density and version of QR code symbol, and proving the reference position which can decide coordinates of modules.

### **3.0.3 Why QR Code use in Vehicle Identification system**

1. High capacity encoding. QR Code has high capacity encoding of data; its maximum symbol can encode 7089 characters; while PDF417 only encode 2710 characters.
2. High-speed reading.
3. Adapted with CCD reading, it can recognize more QR Code symbol per second.
4. Chinese encoding capability. Chinese and Japanese characters are represented by a two-byte combination in other two- dimensional barcode. But in QR Code, there is a specific Chinese mode; it can use 13 bits encoding a Chinese character. So the efficiency of Chinese represented improved 20 per in QR Code.
5. Doesn't matter Orientation: Readable from any direction from 360 degree QR Code is a matrix two-dimensional barcode; it can be readable from any direction from 360 degrees. But the stack two-dimensional barcode, It is very difficult to realize the readable from 360 degrees

## **3.1 MOTIVATION OF THE PROJECT**

Now a day's Vehicle identification is an important area of research for improving methods of vehicle recognition in public and private places. When GPS tracking is not available and the license plate number is missing or unknown then how to find the vehicle information is really a big challenge. To overcome this issue, we are proposing Vehicle Identification System which is 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. 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. By using this system vehicle tracking and tracing is going to become comparatively easy task for the people who may or may not be technically competent.

### **3.2 LITERATURE SURVEY**

#### **1. RADAR: An in-building RF-based user location and tracking system**

**Author:** P. Bahl and V. Padmanabhan (2015)

**Description:**

The proliferation of mobile computing devices and local-area wireless networks has fostered a growing interest in location-aware systems and services. In this paper we present RADAR, a radio-frequency (RF) based system for locating and tracking users inside buildings. RADAR operates by recording and processing signal strength information at multiple base stations positioned to provide overlapping coverage in the area of interest. It combines empirical measurements with signal propagation modeling to determine user location and thereby enable location-aware services and applications. We present experimental results that demonstrate the ability of RADAR to estimate user location with a high degree of accuracy.

#### **2. directionality based location discovery scheme for wireless sensor networks**

**Author:** A. Nasipuri and K. Li (2013)

**Description:**

A sensor network is a large ad hoc network of densely distributed sensors that are equipped with low power wireless transceivers. Such networks can be applied for cooperative signal detection, monitoring, and tracking, and are especially useful for applications in remote or hazardous locations. This paper addresses the problem of location discovery at the sensor nodes, which is one of the central design challenges in sensor networks. We present a new method by which a sensor node can determine its location by listening to wireless transmissions from three or more fixed beacon nodes. The proposed method is based on an angle-of-arrival estimation technique that does not increase the complexity or cost of construction of the sensor nodes.

We present the performance of the proposed method obtained from computer simulations.

### **3.GPS-free positioning in mobile ad-hoc networks**

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

**Description:**

In this paper we consider the problem of node positioning in ad-hoc networks. We propose a distributed, infrastructure-free positioning algorithm that does not rely on Global Positioning System (GPS). The algorithm uses the distances between the nodes to build a relative coordinate system in which the node positions are computed in two dimensions. The main contribution of this work is to define and compute relative positions of the nodes in an ad-hoc network without using GPS. We further explain how the proposed approach can be applied to wide area ad-hoc networks.

### **4.Overview of Radiolocation CDMA Cellular Systems**

**Author:**James J. Caffery, Jr. and Gordon L. Stuber(2015)

**Description:**

Applications for the location of subscribers of wireless services continue to expand. Consequently, location techniques for wireless technologies are being investigated. With code-division multiple access (CDMA) being deployed by a variety of cellular and PCS providers, developing an approach for location in CDMA networks is imperative. This article discusses the applications of location technology, the methods available for its implementation in CDMA networks, and the problems , sixth section. sources of error in the that are encountered when using CDMA networks for positioning.

## **CHAPTER 4**

### **PROBLEM DEFINITION AND SCOPE**



## **4.1 PROBLEM STATEMENT**

To design and implement a system for vehicle user which make easy to carry all vehicle related Document digitally using QR code so that user will not face problem during inquiry and detect stolen vehicle.

### **4.1.1 Goals and objectives**

- Our goal of traffic police system find out authorized user.
- Reduce The traffic police work to obtaining information about the vehicle.
- User does not need to carry their vehicle document every time.
- If person doing unauthorized task according to that generate fine.
- Detect stolen vehicle.

### **4.1.2 Statement of scope**

- The data generated for Vehicle Registration is important, so is the digitalization of that data important. The front end component-mobile operation app performs the task of data collection, location information, using tracking and positioning technologies from both the users i.e. is citizen and traffic police officers. At the backend data warehouse and data analysis center components are used, respectively, for data storage and analysis.

## **4.2 METHODOLOGIES OF PROBLEM SOLVING AND EFFICIENCY ISSUES**

We are using waterfall model for our project.

### **1. Requirement gathering and analysis:**

In this step of waterfall we identify what are various requirements are need for our project such are software and hardware required, database, and interfaces.

### **2. System Design:**

In this system design phase we design the system which is easily understood for end

user i.e. user friendly. We design some UML diagrams and data flow diagram to understand the system flow and system module and sequence of execution.

### **3. Implementation:**

In implementation phase of our project we have implemented various module required of successfully getting expected outcome at the different module levels. With inputs from system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality which is referred to as Unit Testing.

### **4. Testing:**

The different test cases are performed to test whether the project module are giving expected outcome in assumed time. All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.

### **5. Deployment of System:**

Once the functional and non-functional testing is done, the product is deployed in the customer environment or released into the market.

### **6. Maintenance:**

There are some issues which come up in the client environment. To fix those issues patches are released. Also to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment. All these phases are cascaded to each other in which progress is seen as flowing steadily downwards like a waterfall through the phases. The next phase is started only after the defined set of goals are achieved for previous phase and it is signed off, so the name "Waterfall Model". In this model phases do not overlap.

## **4.3 HARDWARE RESOURCES REQUIRED**

Sr. No.	Parameter	Minimum Requirement
1	Processor	Core I7
2	RAM	3 GB.

Table 4.1: Hardware Requirements

#### 4.4 SOFTWAREWARE RESOURCES REQUIRED

Sr. No.	Parameter	Minimum Requirement
1	OPERATING SYSTEM	Windows 7/8.
2	CODING LANGUAGE	JAVA/J2EE
3	IDE	Eclipse Kepler
4	DATABASE	SQLYog community/XAMPP Server.
5	Web Server	Apache Tomcat.

Table 4.2: Software Requirements

# **CHAPTER 5**

## **PROJECT PLAN**

## 5.1 PROJECT ESTIMATES

### 5.1.1 Reconciled Estimates

The project cost can be found using any one of the model.

COCOMO-1 Model

COCOMO-2 Model

Model -1: The basic COCOMO model computes software development efforts as a function of program size expressed in estimated lines of code.

Model-2: The intermediate COCOMO model computes software development efforts as a function of program size and a set of cost drivers that include subjective assessment of the product, hardware, personnel, project attributes

Model-3: The advanced COCOMO model incorporates all characteristics of the intermediate version with a assessment of the cost drivers impact on each step of the software engineering process. Following is the basic COCOMO -2 model.

Software Project	A(b)	B(b)	C(b)	D(b)
Organic	2.4	1.05	2.5	0.38
Semi-detached	3.0	1.22	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

The basic COCOMO -2 model equations take form:

$$E=A(b)KLOCB(b)$$

$$D=C(b)ED(b)$$

Where E is the effort applied in person months. D is development time in chronological month. KLOC is estimated number of delivered lines of code for the project. This project can be classified as Semidetached software project. The rough estimate of number of lines of this project is 9.072k. Applying the above formula

$$E=3.0*(9.072)1.22$$

$$= 44.20 \text{ person- months}$$

$$D=2.5* 44.35$$

$$= 9.40 \text{ months}$$

Hence according COCOMO -2 model the time required for completion of the project is 9 ( 9.40) months.

Cost of Project:

Equation for calculation of cost of project using COCOMO - 2 model is:

$$C = D * C_p$$

Where,

C = Cost of project

D = Duration in month

C<sub>p</sub> = Cost incurred per person-month, C<sub>p</sub>=Rs.5000/- (per person-month) (approx.)

$$C = 9 * 2000$$

$$= 18000/-$$

Hence according COCOMO - 2 model the cost of project is 18000/-(approx.)

### **5.1.2 Project Resources**

Team consists of Four members and proper planning mechanisms are used and role are defined.

## **5.2 RISK MANAGEMENT**

### **5.2.1 Overview of Risk Mitigation, Monitoring, Management**

Probability	Value	Description
High	Probability of occurrence is	>80%
Medium	Probability of occurrence is	21-79%
Low	Probability of occurrence is	<20%

## 5.3 PROJECT SCHEDULE

### 5.3.1 Project Task Set

Project planning is part of project management, which relates to the use of schedules such as Gantt charts to plan and subsequently report progress within the project environment. Initially, the project scope is defined and the appropriate methods for completing the project are determined. Following this step, the durations for the various tasks necessary to complete the work are listed and grouped into a work breakdown structure. Project planning is often used to organize different areas of a project, including project plans, work loads and the management of teams and individuals. The logical dependencies between tasks are defined using an activity network diagram that enables identification of the critical path. Project planning is inherently uncertain as it must be done before the project is actually started. Therefore the duration of the tasks is often estimated through a weighted average of optimistic, normal, and pessimistic cases. The critical chain method adds "buffers" in the planning to anticipate potential delays in project execution. Float or slack time in the schedule can be calculated using project management software. Then the necessary resources can be estimated and costs for each activity can be allocated to each resource, giving the total project cost. At this stage, the project schedule may be optimized to achieve the appropriate balance between resource usage and project duration to comply with the project objectives. Once established and agreed, the project schedule becomes what is known as the baseline schedule. Progress will be measured against the baseline schedule throughout the life of the project. Analyzing

progress compared to the baseline schedule is known as earned value management. The inputs of the project planning phase 2 include the project charter and the concept proposal. The outputs of the project planning phase include the project requirements, the project schedule, and the project management plan. The Project Planning can be done manually. However, when managing several projects, it is usually easier and faster to use project management software.

### **5.3.2 Timeline Chart**

A Gantt chart is constructed with a horizontal axis representing the total time span of the project, broken down into increments (for example, days, weeks, or months) and a vertical axis representing the tasks that make up the project (for example, if the project is outfitting your computer with new software, the major tasks involved might be: conduct research, choose software, install software). Horizontal bars of varying lengths represent the sequences, timing, and time span for each task. Using the same example, you would put "conduct research" at the top of the vertical axis and draw a bar on the graph that represents the amount of time you expect to spend on the research, and then enter the other tasks below the first one and representative bars at the points in time when you expect to undertake them. The bar spans may overlap, as, for example, you may conduct research and choose software during the same time span. As the project progresses, secondary bars, arrowheads, or darkened bars may be added to indicate completed tasks, or the portions of tasks that have been completed. A vertical line is used to represent the report date. Gantt charts give a clear illustration of project status, but one problem with them is that they don't indicate task dependencies - you cannot tell how one task falling behind schedule affects other tasks.



### 5.3.3 Task Network

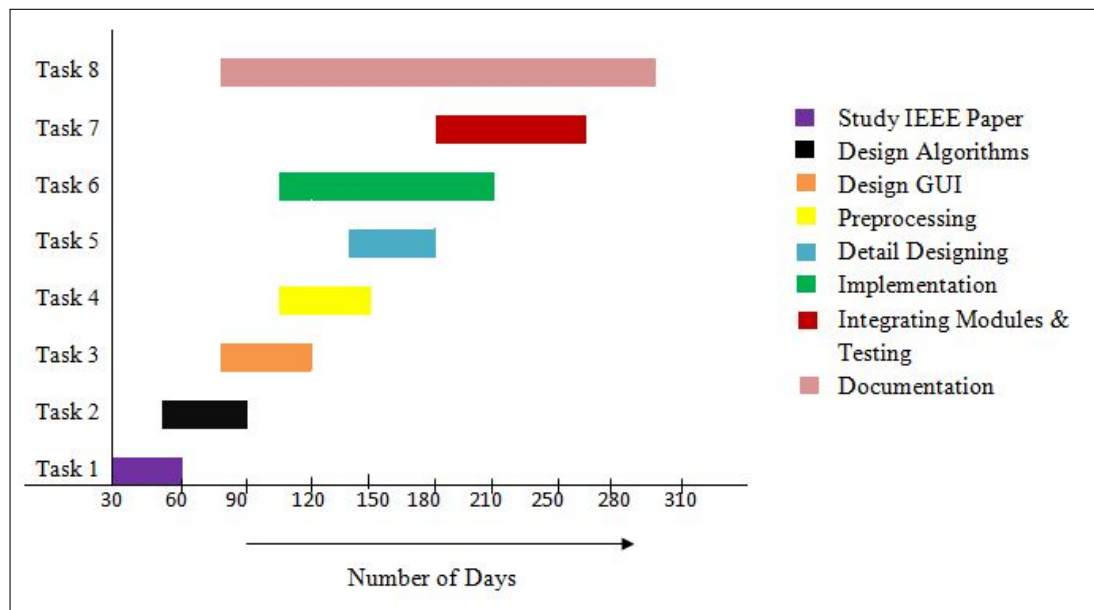


Figure 5.1: Timeline Chart

## 5.4 RISK MANAGEMENT W.R.T. NP HARD ANALYSIS

This section discusses Project risks and the approach to managing them.

### 5.4.1 Risk Identification

For risks identification, review of scope document, requirements specifications and schedule is done. Answers to questionnaire revealed some risks. Each risk is categorized as per the categories mentioned in [?]. Please refer table for all the risks. You can refereed following risk identification questionnaire.

1. Have top software and customer managers formally committed to support the project?

Ans-Not applicable.

2. Are end-users enthusiastically committed to the project and the system/product to be built?

Ans-Not known at this time.

3. Are requirements fully understood by the software engineering team and its cus-

tomers?

Ans-Yes

4. Have customers been involved fully in the definition of requirements?

Ans-Not applicable

5. Do end-users have realistic expectations?

Ans-Not applicable

6. Does the software engineering team have the right mix of skills?

Ans-yes

7. Are project requirements stable?

Ans-Yes

8. Is the number of people on the project team adequate to do the job?

Ans-Not applicable

9. Do all customer/user constituencies agree on the importance of the project and on the requirements for the system/product to be built?

Ans-Not applicable

## **5.5 TEAM ORGANIZATION**

Team consists of only Four members and proper planning mechanisms are used and role are defined.

### **5.5.1 Team structure**

The team structure for the project is identified. Roles are defined.

### **5.5.2 Management reporting and communication**

Well planning mechanisms are used for progress reporting and inter/intra team communication are identified as per requirements of the project.

**CHAPTER 6**

**SOFTWARE REQUIREMENT**

**SPECIFICATION**

## **6.1 INTRODUCTION**

### **6.1.1 Purpose and Scope of Document**

We are proposing an application that replaces the current manual processes for checking the vehicle documentary through police. User side 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.

### **6.1.2 Overview of responsibilities of Developer**

1. To have understanding of the problem statement.
2. To know what are the hardware and software requirements of Proposed system.
3. To have understanding of proposed system.
4. To do planning various activities with the help of planner.
5. Designing, programming, testing etc.

## **6.2 USAGE SCENARIO**

This section provides various usage scenarios for the system to be developed.

### **6.2.1 Use-cases**

A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.

### 6.2.2 Use Case View

Use Case Diagram. Example is given below

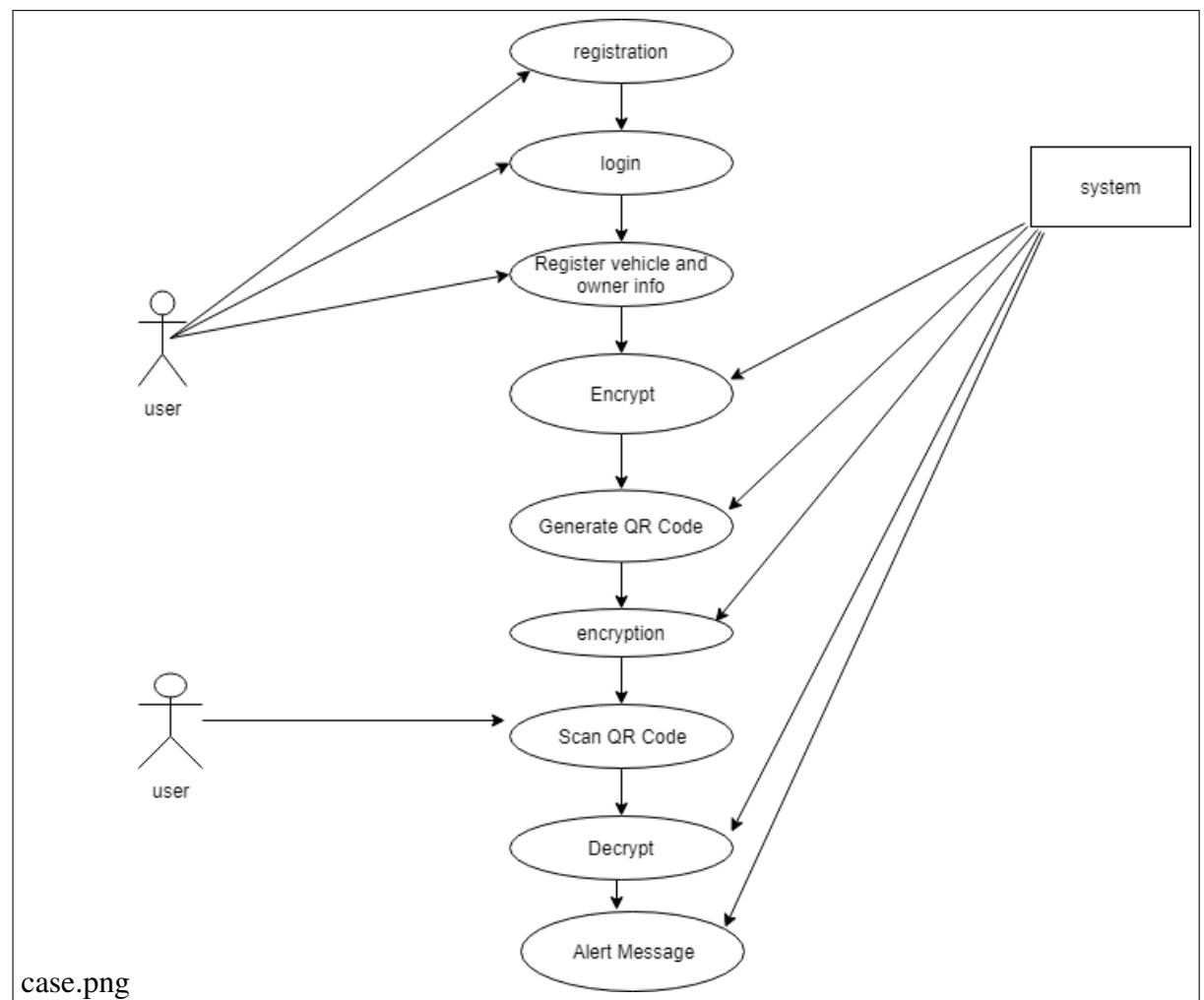


Figure 6.1: Use case diagram

## 6.3 FUNCTIONAL MODEL AND DESCRIPTION

### 6.3.1 Data Flow Diagram

#### 6.3.1.1 Level 0 Data Flow Diagram

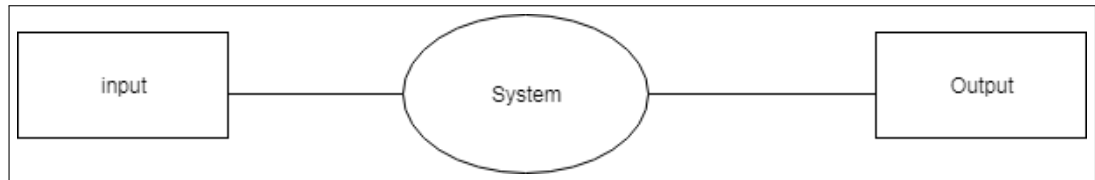


Figure 6.2: DFD 0 level

#### 6.3.1.2 Level 0.1 Data Flow Diagram

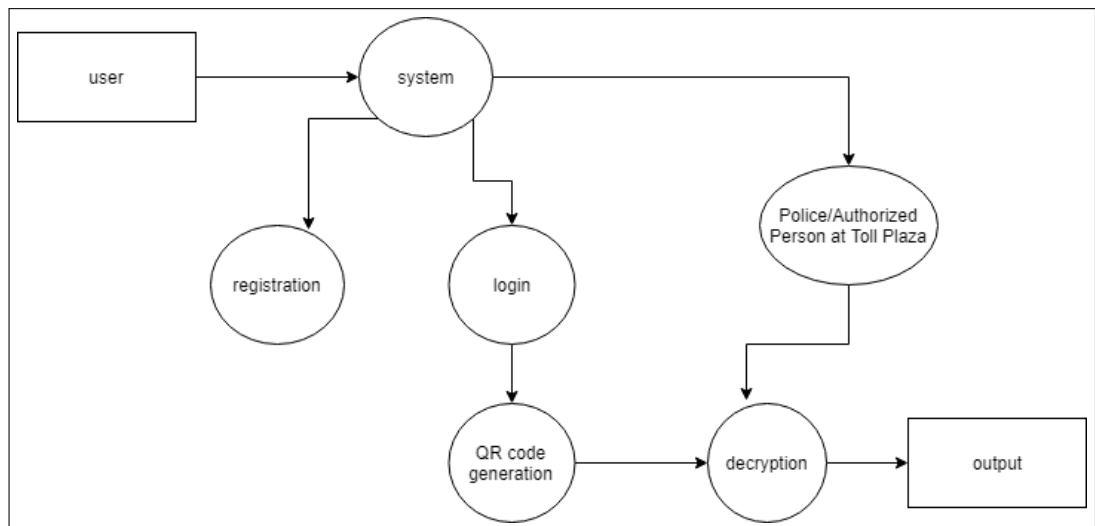


Figure 6.3: DFD 0.1 level

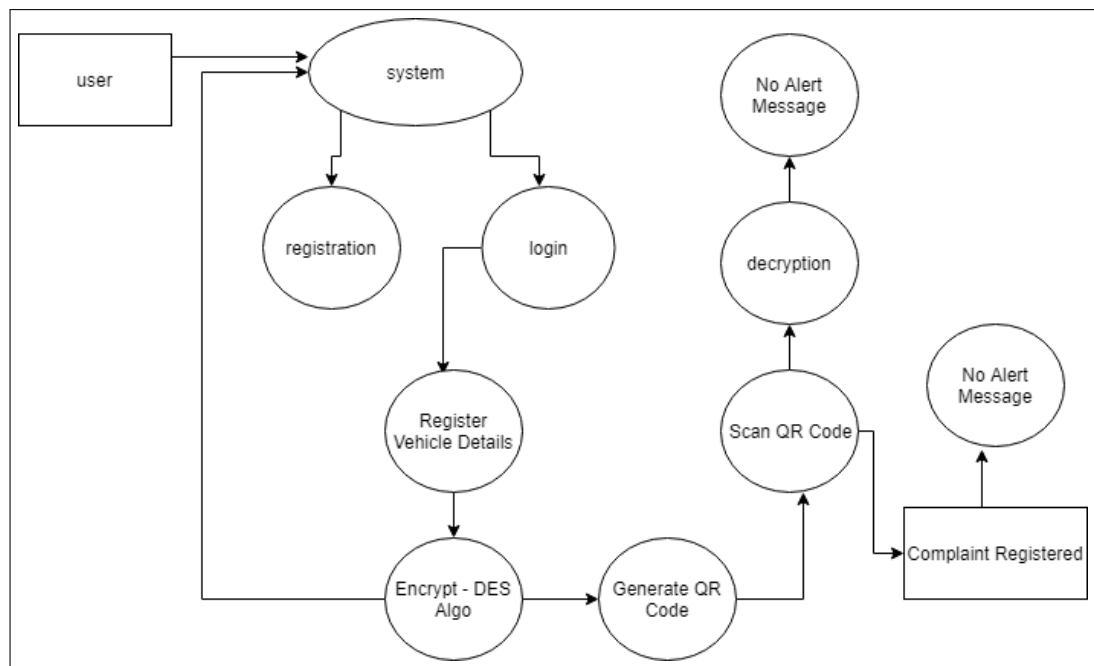


Figure 6.4: DFD 0.2 level

### 6.3.2 Activity Diagram:

- Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams can be used to describe the business and operational step-by-step workflows of components in a system. An activity diagram shows the overall flow of control.

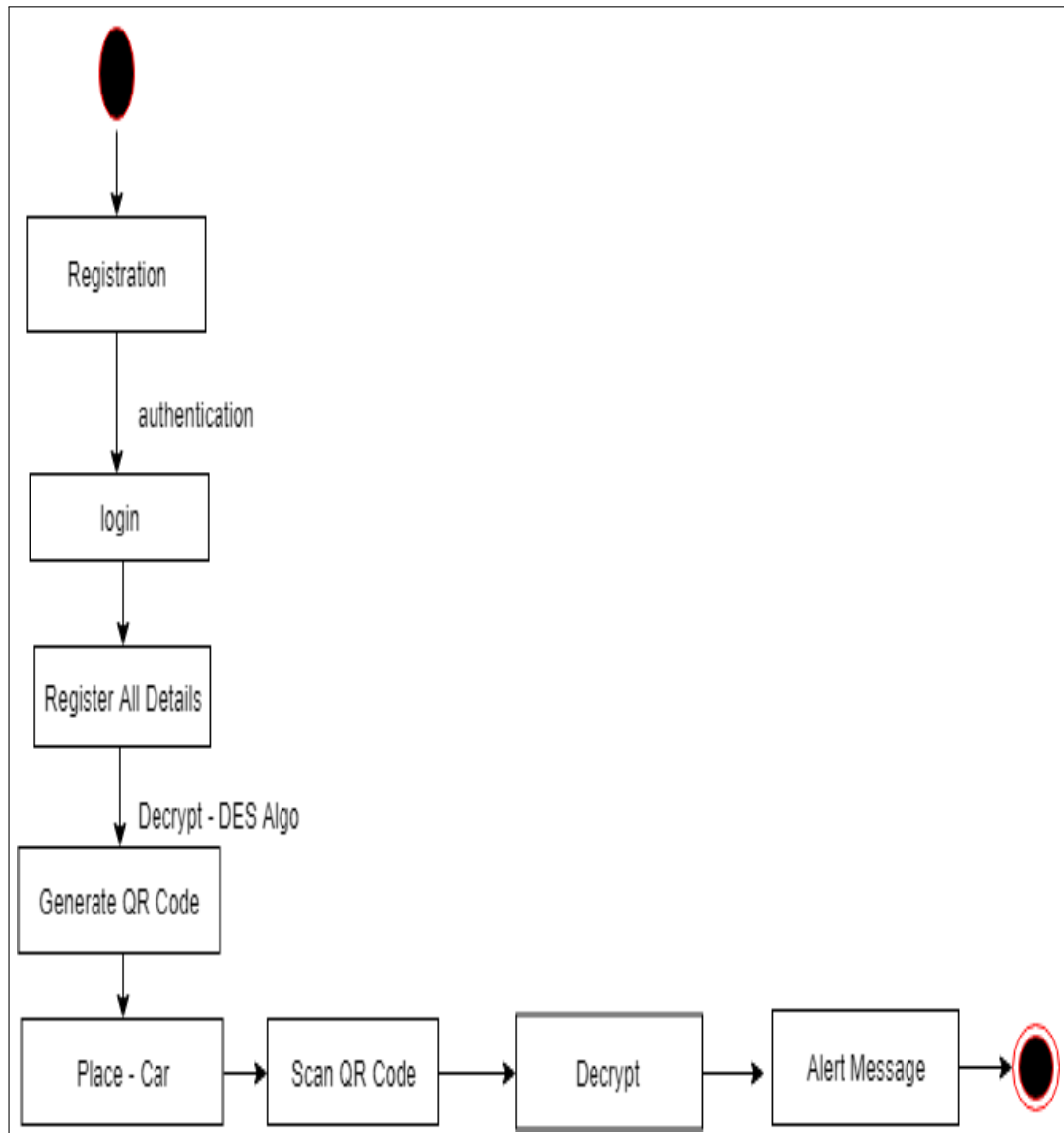


Figure 6.5: Activity Diagram



### 6.3.3 Sequence Diagram:

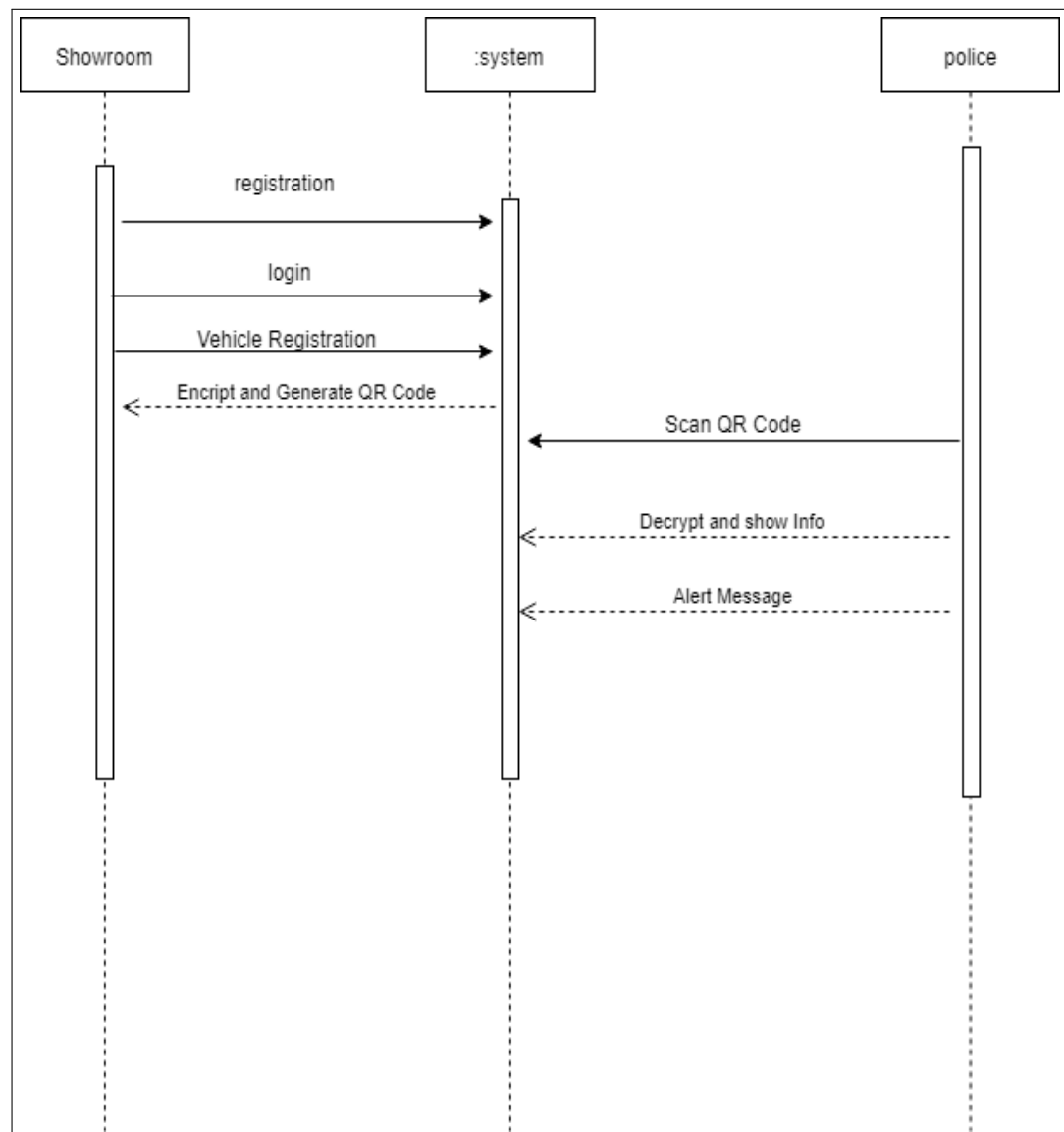


Figure 6.6: Sequence Diagram

### 6.3.4 Non Functional Requirements:

#### 6.3.4.1 Interface Requirements

- High Speed Internet
- Router

#### 6.3.4.2 Performance Requirements

- Laptops with latest configuration
- Smart Phone

#### 6.3.5 Design Constraints

1. Apache Tomcat webserver.
2. SQLYog community/XAMPP Server.

#### 6.3.6 Software Interface Description

The software interface(s) to the outside world is(are) described. The requirements for interfaces to other devices/systems/networks/human are stated.

**CHAPTER 7**

**DETAILED DESIGN DOCUMENT USING**

**APPENDIX A AND B**

## 7.1 INTRODUCTION

We are proposing an application that replaces the current manual processes for checking the vehicle documentary through police. User side 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.

## 7.2 ARCHITECTURAL DESIGN

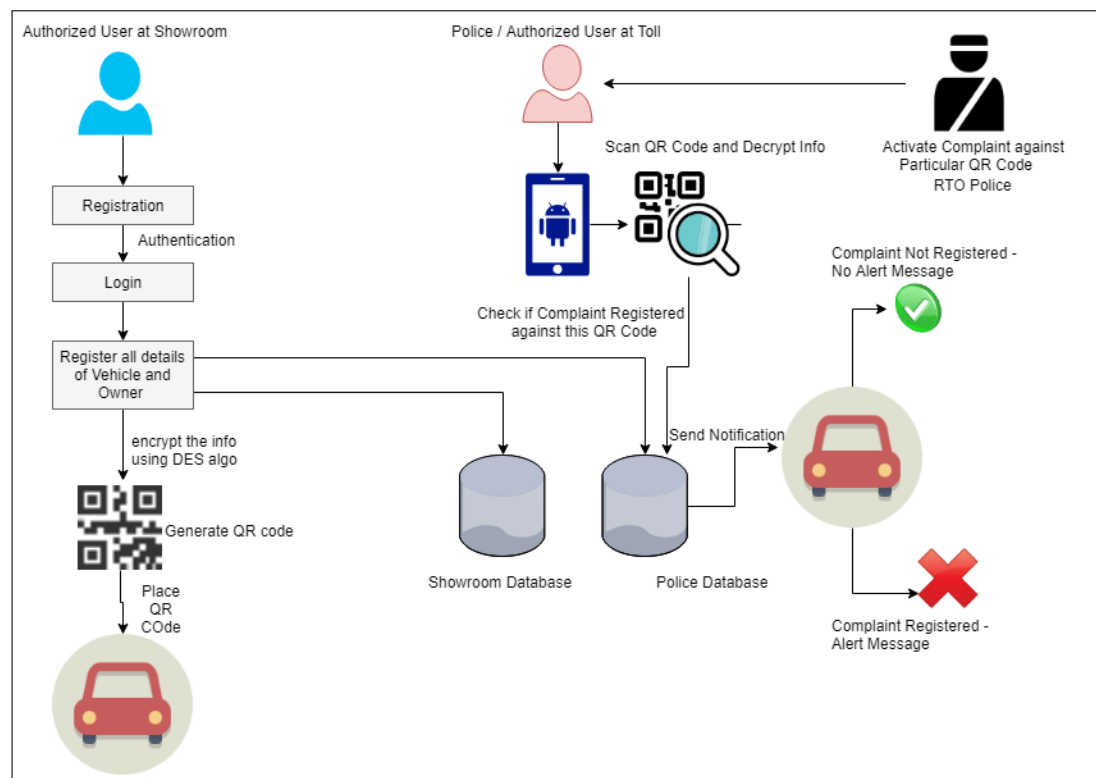


Figure 7.1: Architecture diagram

## 7.3 DATA DESIGN (USING APPENDICES A AND B)

A description of all data structures including internal, global, and temporary data structures, database design (tables), file formats.

### 7.3.1 Internal software data structure

Protects the data confidentiality and integrity .

### 7.3.2 Global data structure

No global data structure used

### 7.3.3 Database description

Database(s) / Files created/used as part of the application is(are) described.

## 7.4 COMPOENT DESIGN

### 7.4.1 Class Diagram

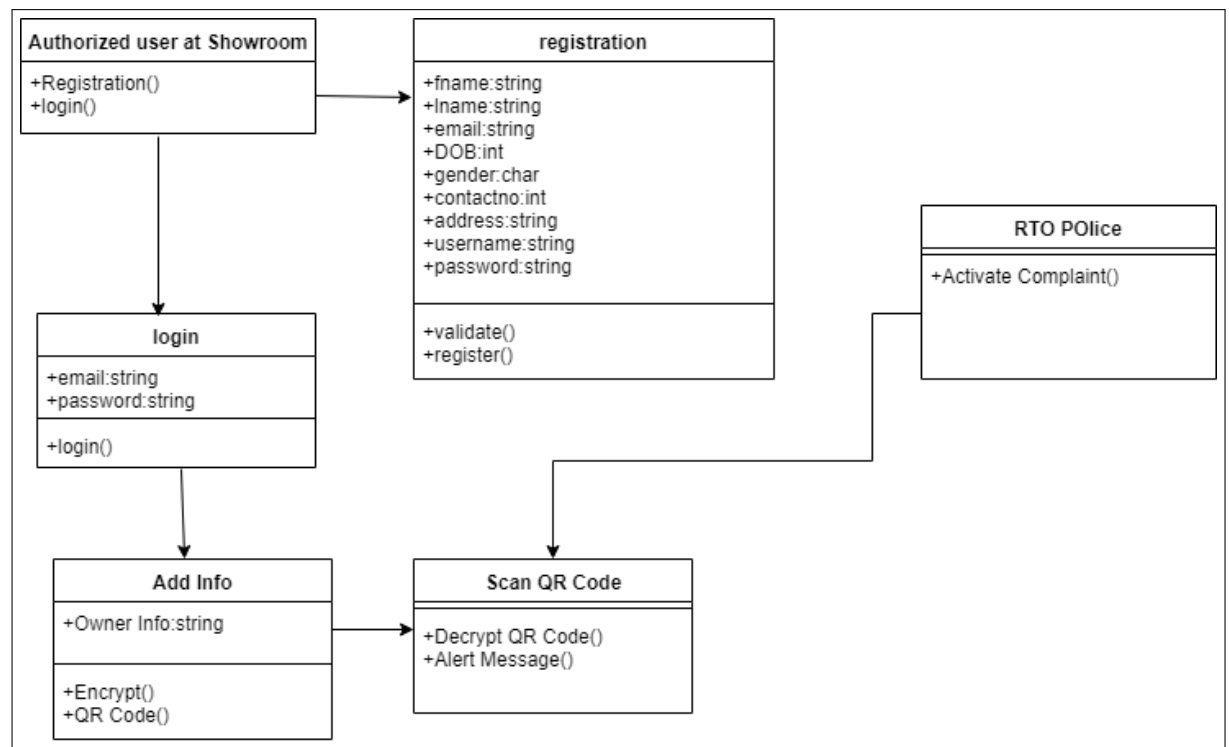


Figure 7.2: Class Diagram

## **CHAPTER 8**

### **SUMMARY AND CONCLUSION**

By using this application it is not necessary to carry all the documents and license every time. Simply you have to carry QR code in your Smartphone. By using our system the driver goes through the verification process through a reliable and efficient manner. QR code is being widely used for implanting messages such that people can easily use their Smartphone's to capture the QR code and gain relevant data from QR code reader. User can get QR code by simply registering with the system.

## **CHAPTER 9**

### **REFERENCES:**



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