International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 06 Issue: 04 | Apr 2019 www.irjet.net p-ISSN: 2395-0072

Fast Detection Method of Quick Response Code By Comparing Run-Length Coding with Elliptical Curve Cryptography Algorithm

Gayathri R & Maheswari S

[1]*Professor: Mrs.G. Deepa,MCA.,M.Phil.,Assistant Professor,Dept. of Computer Science, Dhanalakshmi Srinivasan College Of Arts And Science For Women , Perambalur, Tamil Nadu, India.*

Abstract - Quick response (QR) code, one of the two-dimensional barcodes, is now being widely used in all fields. The effectiveness of decoding, however, needs to be improved in real-time application. In most cases, the decoding procedure is time consuming, in which the detection of QR code plays an essential part. An efficient utilization of TOLL ID CARD using QR Code Scanner to facilitate vehicle monitoring, vehicle authentication and automated toll collection on the highways is proposed. Therefore, this study proposes a fast detection method of QR code based on run-length coding: firstly, a novel approach is proposed to detect the minimum region containing position detection pattern (PDP) in QR code. By this means, the computational complexity can be reduced tremendously. In this project a module has been implemented with existing system using elliptical curve cryptography algorithm to determine the efficiency of proposed model.

***Key Words*: QR, Mental Disorder, SVM**

1. INTRODUCTION

There are millions of drivers passing through Toll Gate Stations every day. The conventional or the traditional way of collecting the toll from the vehicle owners or the drivers is to stop the car by the Toll Gate Stations and then pay the amount to the toll collector standing (or perhaps sitting!) by the side of the toll booth, after which the gate is opened either mechanically or electronically for the driver to get through the toll station. The advances in the technologies related to image processing has led to the emergence of several designs to aid the human requirements. Today on one side the importance for secured access is growing in several fields and on other side with technology advancements the QR Code cards and readers are becoming low cost. Both these aspects are the primary reasons for rapidly growing QR based authentication system.

Quick Response Code

QR code (abbreviated from **Quick Response Code**) is the trademark for a type of matrix barcode (or two-dimensional barcode) first designed for the automotive industry in Japan. A barcode is a machine-readable optical label that contains information about the item to which it is attached. A QR code uses four standardized encoding modes (numeric, alphanumeric, byte / binary, and kanji) to efficiently store data; extensions may also be used.

The QR Code system has become popular outside the automotive industry due to its fast readability and greater storage capacity compared to standard UPC barcodes. Applications include product tracking, item identification, time tracking, document management, general marketing, and much more.

A QR code consists of black modules (square dots) arranged in a square grid on a white background, which can be read by an imaging device (such as a camera) and processed using Reed–Solomon error correction until the image can be appropriately interpreted. The required data are then extracted from patterns present in both horizontal and vertical components of the image.

RUN LENGTH CODING

Run-length encoding (RLE) is a very simple form of lossless data compression in which runs of data (that is, sequences in which the same data value occurs in many consecutive data elements) are stored as a single data value and count, rather than as the original run. This is most useful on data that contains many such runs. Consider, for example, simple graphic images such as icons, line drawings, Conway's Game of Life, and animations. It is not useful with files that don't have many runs as it could greatly increase the file size. RLE may also be used to refer to an early graphics file format supported by CompuServe for compressing black and white images, but was widely supplanted by their later Graphics Interchange Format. RLE also refers to a little-used image format in Windows 3.x, with the extension rle, which is a Run Length Encoded

Bitmap, used to compress the Windows 3.x startup screen.
Run-length encoding schemes were employed in the transmission of television signals as far back as 1967.It is particularly well suited to palette-based bitmapped images such as computer icons, and was a popular image compression method on early online services such as CompuServe before the advent of more sophisticated formats such as GIF. It does not work well at all on continuous-tone images such as photographs, although JPEG uses it quite effectively on the coefficients that remain after transforming and quantizing image blocks.
Common formats for run-length encoded data include Truevision TGA, PackBits, PCX and ILBM. The ITU also describes a standard to encode run-length-colour for fax machines, known as T.45.The standard, which is combined with other techniques into Modified Huffman coding,[citation needed] is relatively efficient because most faxed documents are generally white space, with occasional interruptions of black.

ELLIPTICAL CURVE CRYPTOGRAPHY
Elliptic-curve cryptography (ECC) is an approach to public-key cryptography based on the algebraic structure of elliptic curves over finite fields. ECC requires smaller keys compared to non-EC cryptography (based on plain Galois fields) to provide equivalent security.

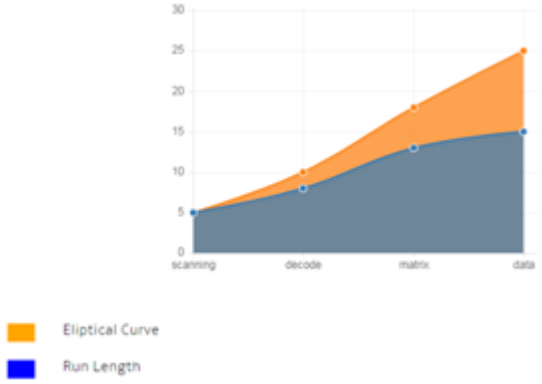
Elliptic curves are applicable for key agreement, digital signatures, pseudo-random generators and other tasks. Indirectly, they can be used for encryption by combining the key agreement with a symmetric encryption scheme. They are also used in several integer factorization algorithms based on elliptic curves that have applications in cryptography, such as Leenstra elliptic-curve factorization.

2. Existing System

The problem is that lot of time consumed to the people for getting details from the manual process. This brings us to the age-old discussion of keeping information in the form databases versus keeping same on sheets of paper. The existing system consists of a microcontroller and bill printer. The reader retrieves the information about the ID number and identifies the vehicle. Then for the tax to be collected the bill is printed at the time of exit. The stepper motor here is used to open and close the gate automatically. In the existing system, though there is an RFID reader the tax collection is manual and not automated. There are no security features such as identifying a stolen vehicle etc. The toll tax which is collected for all the vehicles is the same and the tax collected is not based on the load carried by the vehicle .Exist model with QR code using Elliptical curve algorithm to encode and decode the QR and it has some difficulties on time consumption.
Elliptic-curve cryptography (ECC) is an approach to public-key cryptography based on the algebraic structure of elliptic curves over finite fields. ECC requires smaller keys compared to non-EC cryptography (based on plain Galois fields) to provide equivalent security.

3. Proposed System

The proposed system makes sure that the traffic at the toll gates is streamlined and security is also present. The tax which is collected is based on the load carried by the vehicle. Through this system we can also identify stolen vehicles. The proposed system having all components is centralized with cloud. Every vehicle must have a unique ID Tag for store the Vehicle name and user's details. An ID card is allocated on each vehicle with read/write memory. An ID reader at the gate reads this data from the vehicle as it approaches the toll booth. ID reader communicates with PC using QR Scanner. Scanner takes bytes of data and transmits the individual bits in a sequential fashion. It consists of the entire database which is updated periodically. Now after reading the information, it compares the data in the database and allows the access accordingly by opening/closing the gate. The pressure of the vehicle is obtained using the pressure sensor and accordingly the pressure of the vehicle is displayed on the display. A counter is used to count the number. This proposed model implements run-length algorithm to encode and decode QR code. The effectiveness of decoding, however, needs to be improved in real-time application. In most cases, the decoding procedure is time consuming, in which the detection of QR code plays an essential part. Therefore, this study proposes a fast detection method of QR code based on run-length coding: firstly, a novel approach is proposed to detect the minimum region containing position detection pattern (PDP) in QR code. Second, coordinates of central PDP in QR code are calculated by using run-length coding.



Cost

The cost required in the proposed system is comparatively less to the existing system.

Effort

Compared to the existing system the proposed system will provide a better working environment in which there will be ease of work and the effort required will be comparatively less than the existing system.

Time

Also, the time required generating a report or for doing any other work will be comparatively very less than in the existing system. Record finding and updating will take less time than the existing system.

Need for Computerization

To solve the problems faced during the manual processing of exam registration forms distribution, collection, sorting and transferring data to ledgers – consumes lot of time as well as manpower and results in delay of the overall cycle of processes starting from registration to result publishing. By shifting to the online system client can save a lot of time and manpower. Also, the delay in conducting exams and publishing results can be avoided. They required a web based application that will provide a working environment that will be flexible and will provide ease of work and will reduce the time for report generation and other paper works. User needs a web-based system, which will remove all the above-mentioned Problems that, the user is facing. The user wants a web-based system, which will reduce the bulk of paperwork, provide ease of work, flexibility, fast record finding, modifying, adding, removing and generating the reports.

4. Conclusion

Our system is a user friendly toll fee method this can save time and reduce traffic congestion at toll gates and provide solution for users to reach their destination without wastage of time. It gives the toll authorities the flexibility to set variable pricing for toll services and thus a fair policy of tax collection can be followed. This way there is no loss incurred by a person carrying a vacant vehicle.. Here there is no cash transaction for the toll lanes, so cash handling is reduced. Thus difficulties with cash handling are eliminated and this way aid in enhanced audit control by centralizing user accounts. Information such as vehicle count over the time of the day, date, time etc., can be obtained due to the deployment of this technology. This helps in making decisions regarding the pricing strategies for the toll providers. It also helps planner to estimate the travel time that aid in designing decisions.

Future Enhancements:

In future it can be implemented as automatic vehicle detection using sensor cam to identify the vehicle and other details in sensor networks based system. Also it can be released as mobile application for the users to manage bills for toll.

REFERENCES

BOOKS:

[1] PHP 5 Fast and Easy Web Development (Fast & Easy Web Development) - Julie Meloni

[2] Web Database Applications with PHP and MySQL Hugh E. Williams (Author), David Lane (Author)

[3] Professional Red hat Enterprise Linux 5 - Kapilsharma& Tony steidler-dennison MySQL(TM): The Complete Reference VikramVaswani (Author)

WEBSITES:

[1] http://php.net/manual/en/book.mysql.php

[2] https://ijarbest.com/conference/spcl10/447

[3] https://www.ijert.org/download/592/automatic-toll-gate-management-and-vehicle-access-intelligent-control-system-based-on-arm7-microcontroller

[4]http://www.esponce.com/resources/about-qr-codes

BIBLIOGRAPHY NOTES

	**Mrs. G. Deepa** – Received MCA.,M.Phill., Degree In Computer Science. She Had Presented 2 Papers In International Conference And Also She Presented 3Papers In National Conference. She Is Currently Working As Assistant Professor In Department Of Computer Applications In Dhanalakshmi Srinivasan College Of Arts And Science For Women , Perambalur, Tamil Nadu, India.
	Ms. M. Gayathri , PG scholar, Department of Computer Science, Pursuing MCA in Dhanalakshmi Srinivasan College Of Arts And Science For Women , Perambalur-621 212, Tamil Nadu, India.
	Ms. S. Maheswari , PG scholar, Department of Computer Science, Pursuing MCA in Dhanalakshmi Srinivasan College Of Arts And Science For Women , Perambalur-621 212, Tamil Nadu, India.