

## Novel Unique Technique for Generating Ticket Identifier Using Image Texture Patterns

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### ABSTRACT

A paperless ticketing system with an application through which user can purchase a mobile ticket. Once the purchasing information is provided, the mobile ticket can be sent to the respective users mobile. A new method is introduced to generate tickets in which texture pattern is generated for digest provided by md5.

The ticket is sent in the format of image consisting of texture patterns. Ticket can be verified by ticket checker using an application developed to verify genuine ticket. This system will be a revolution in the m-commerce world.

**Keywords-** Mobile Ticket

### I. INTRODUCTION

A system in which user can buy mobile ticket by logging into the website. Ticket will be sent on user's mobile in the form of a barcode. Ticket will be encrypted in the barcode in which all his personal details will be filled and it will be decoded when it will verify the ticket by which it will get authenticated.

M- Ticket is a paperless ticketing system, which enables user to buy tickets on mobile. These are digital tickets which can be saved on the users mobile. The functionalities of the system can be accessed through a mobile application. This application provides a user friendly graphical interface on the users mobile. All the required details of the purpose are securely sent to the admin server, where these details are saved and used to create a unique texture pattern. The texture pattern generated is unique for each user and is sent to the respective user mobile as ticket. The application uses internet service to buy tickets. The ticket is sent in an image format and can be saved in mobile. While verifying the ticket, the ticket is to be sent to the ticket checkers mobile phone. The application in the ticket checkers mobile will verify the ticket for a user by decoding the texture pattern.

### II. RELATED WORK

Many event hosting, traveling organizations are looking for a secure platform for distributing tickets virtually. As virtual tickets will enable user to buy tickets in few clicks and thus will eradicate the

efforts of manual ticket distribution and purchasing. Also the money will be directly transferred to the bank account of that organization making the purchasing transaction more secure. SMS based ticketing approach is used by many Indian travelling agencies. Red Bus travelling agency has declared that a sms containing details will be used as a digital ticket. The sms will be sent by the agency to the users mobile. Similar kind of ticketing system is used IRCTC reservation in which the sms will be considered as ticket. This sms contains travelling information, unique number from which the authenticity of the ticket is determined.

### III. EXISTING SYSTEM

M- Ticket is a paperless ticketing system, which enables user to buy tickets on mobile. These are digital tickets which can be saved on the users mobile. The functionalities of the system can be accessed through a mobile application. This application provides a user friendly graphical interface on the users mobile. All the required details of the purpose are securely sent to the admin server, where these details are saved and used to create a unique texture pattern. The texture pattern generated is unique for each user and is sent to the respective user mobile as ticket. The application uses internet service to buy tickets. The ticket is sent in an image format and can be saved in mobile. While verifying the ticket, the ticket is to be sent to the ticket checkers mobile phone. The application in the ticket

checkers mobile will verify the ticket for a user by decoding the texture pattern.

Masabi a fare collections agency is using quick response codes as tickets. These tickets can be sent directly to the user mobile. [1]The ticket nothing but a virtual QR code is the user information with an unique id. [2]These Q-R codes can be verified by an application provided to the Ticket Checker. User information is encrypted into a QR code. This information is retrieved for verifying the user by ticket checkers application.

Stadiums have introduced digital tickets for avoiding the mess and black market of tickets. The website of a national basketball team is providing the facility of purchasing tickets on mobile. The seats can be booked from the teams website , the website also provides option of mobile banking for transferring funds. Reward schemes and other promotional packages are also effectively implemented through this ticketing system.

Another fare collection agency Ticketmaster has launched digital tickets, whereby users can digitally transfer tickets to others at no cost, directly from their Ticketmaster accounts online. The platform, which digitizes every ticket, also effectively deals with issues like ticket counterfeiting and scalper fraud. Ticketmaster’s system uses barcodes as tickets. While transferring tickets on mobile a request is to be sent by the user. The request is then processed by the systems server and corresponding user’s barcode is invalidated and a new barcode is sent to the users who wanted the transfer done on his mobile. The service is provided by the ticketmasters website and the user has to sign

up with it. An Application to provide this service has been declared by the agency.

#### IV. PROPOSED SYSTEM

The working of the system is shown in the following steps:-

1. The details of the purpose are sent through the internet to the server by users through the application.
2. The details are given as input to the image signature generator software. An image signature is produced.
3. The image signature is given input to the texture pattern module, the texture pattern module refers the pattern library and a unique identification code is generated.
4. The unique identification code is sent to the user mobile through internet.
5. Whenever a m-ticket is asked by a ticket checker the user is supposed to show the saved ticket on its mobile.
6. The ticket is transferred to the TC’s mobile through Bluetooth, The ticket is decoded and sent to the server with unique name of the user.
7. In the server details of the unique name of user are saved and again a unique identification code is generated. The unique identification codes are compared.
8. The result of comparison is sent to the TC’s mobile through internet.
9. In this way the authenticity of ticket is determined.

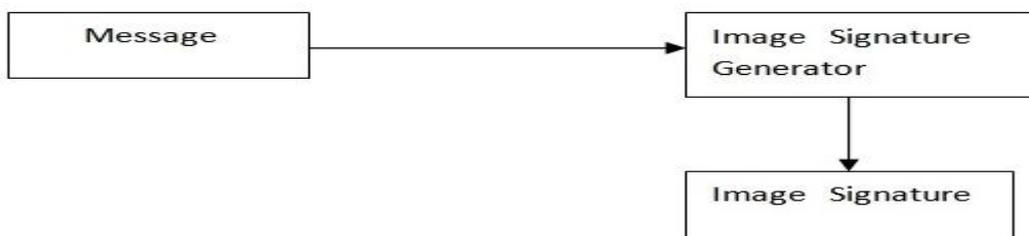


Fig 1. Image Signature Generator.

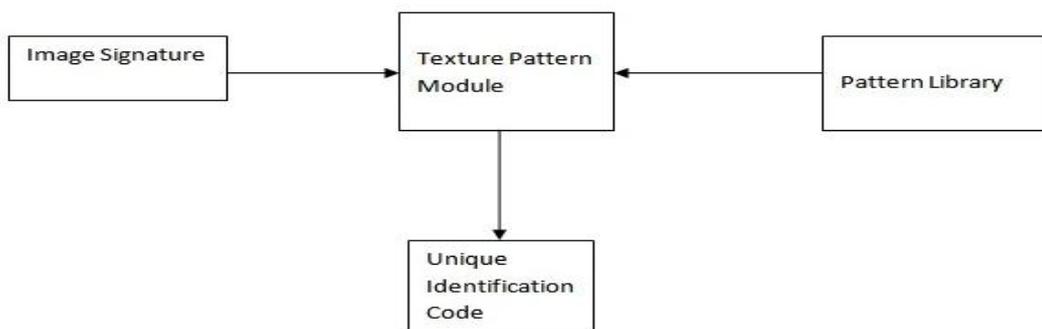


Fig 2.Texture Pattern Generator

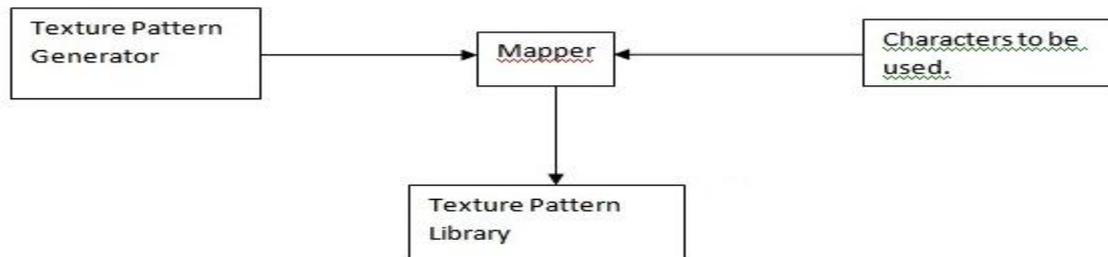


Fig 3.Characters and Texture patterns mapping

#### 4.1 MD5 Algorithm

MD5 was developed by Ron Rivest [3] to generate secure signatures on internet. MD5 a message digest algorithm is a cryptographic hash function which generates a 128 bit hash string for any given message as input. MD5 is used in various application to generate hash function or message digest. One of the vital properties of md5 is that it always produces unique string for an input.

For any random block of data a cryptographic hash function produces a fixed size string. The fixed size string is also known as hash value. Any inadvertent or intentional change to input string will change the hash value. As this function is used in cryptographic operations the input is generally a message. The hash value is also known as message digest.

Hash value or the message digest can be obtained using easily by md5. For two different messages there will be no two different digests generated. Retaining the message of a given hash is not possible. It is impossible to produce a message that has a given hash.

The MD5 algorithm provides security with respect to various aspects. Essential information security properties like authentication and confidentiality can be applied to any data by using MD5. The MD5 can be used to determine forged data, to individually spot data, to index data in hash tables, checksums to recognize accidental data corruption. In this application md5 is used to deduce a hash value that is used to generate a unique texture pattern. The hash value deduced is used as image signature. The image signature contains the unique number so for each and every user the image signature is unique.

In the proposed system md5 algorithm plays a crucial role in generating the message. For any given information the md5 algorithm will produce its message digest. The Md5 algorithm uses 256 characters to generate 16 character message digest. Now for each character a unique matrix is already generated and kept in the pattern library. The 16 character string is taken by the mapper, for each character corresponding texture pattern is generated. This pattern are arranged in a 4X4 matrix. The allocation is in horizontal way.

#### 4.2 Generating Texture Pattern

A simple matrix multiplication is used to generate these image texture patterns. A 16x16 matrix with ones and zeroes is used to generate 256 matrices. The reason of generating only 256 matrices is that the md5 algorithm generates digest from a set of 256 characters. So each matrix is mapped into an excel sheet. The numbers are not mapped directly instead a color is assigned to the number black is assigned for all the ones and white is assigned for all the zeroes. In this way 256 excel sheets are generated with black and white patterns. These patterns are assigned to all the 256 characters used by md5.

Finally the digest produced contains only 16 characters which are arranged in a 4x4 matrix. Instead of characters the texture patterns are inserted in horizontal way.

#### 4.3 Pattern Library

The pattern library consists of set of all the characters which will be used each time the message digest is generated. For each character a particular image pattern is allocated, the image pattern is different for every character in the set.

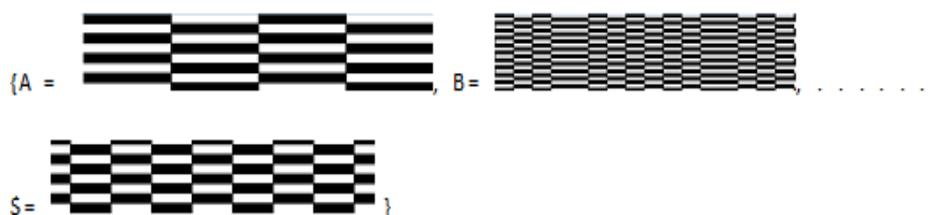


Fig 4.Pattern Library

The mapper maps each character from the message digest string into the pattern library. Then pattern of each character is placed in the 4x4 matrix. Pattern of first character in [1][1] block of matrix, pattern of second in [1][2] block of matrix and so on. The matrix is filled in horizontal way.

A	B	C	D
E	F	G	H
I	J	K	L
M	N	O	P

Fig 5.Horizontal Method

For eg the the 16 character string or message digest is ABCDEFGHIJKLMNOP. Then its corresponding matrix with pattern for each character will be as shown in the figure.

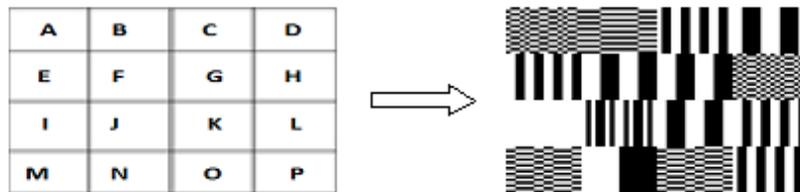


Fig 6.Placement of texture patterns for alphabet

#### 4.4 Code Verification

The code is sent to the checkers mobile with the unique id. The checkers mobile communicates with the server and sends unique id to the server. The details of the sent ids are acquired and a message digest is generated.

On the basis of that message digest a unique texture pattern is developed. The unique texture pattern sent by the checker is compared with the newly generated texture pattern and the result is sent to the checkers mobile.

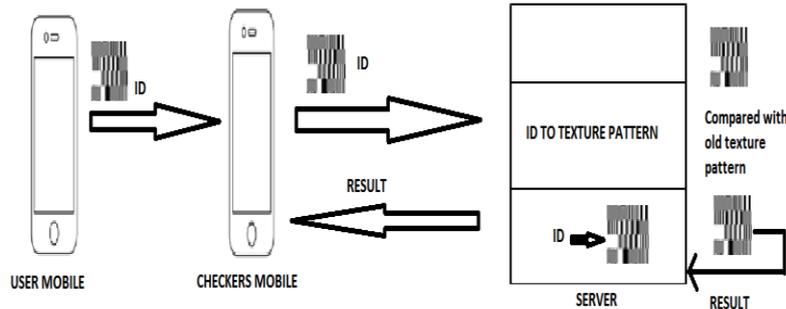


Fig 7.Working of System

#### 4.5 Results and Experimentation

The unique identification code being generated can be used as an alternative to the existing quick response code and barcodes. The texture pattern generated cannot be same for any given user as for each user a unique code is given. That unique code is used as the message to generate the image signature.

#### V. CONCLUSION

As current system for purchasing tickets is time consuming and less efficient. We are introducing an application to purchase tickets on and in mobile with implementation of an efficient security algorithm.

The application would reduce time consumption, eliminate cost of sales, no problem of

lost tickets. Hence the system will be a user friendly platform to purchase tickets in a secured way.

#### VI. ADVANTAGES OF PROPOSED SYSTEM

1. No use of paper tickets.
2. Application is secured and not vulnerable to attacks.
3. Tickets can be placed anytime anywhere.
4. The application would reduce time.
5. consumption, eliminate cost of sales, no problem of lost tickets

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