



Gate pass Automation with Image, Barcode reading and Biometrics

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ABSTRACT

An Enterprise Security Software for controlling, monitoring and authorizing visitors in the company. It allows visitor photograph capturing, communication between security and employees, visitor authentication by the visitor, auto forwarding of authorization request in absence of visitor, auto-login facility for the users, gate pass printing with barcode and visitors photograph, current visitors list, out-time posting, visitor history etc.

Summary

Our system is proposed to use Bar code generation, Finger printing and Image processing in generation of a gate pass which eliminates the flaws in the existing security systems. These systems are frequently used to complement building or any organization security systems and access control systems. The application is developed successfully and implemented as mentioned above.

This system seems to be working fine and successfully. This system can able to provide the proper training set of data and test input for security purposes. The face matched with initial image taken or not is given in the form of picture image if matched on the generated pass.

The pass can be of two types one for temporary visitors and another for the permanent (regular) users.

Keywords : Gate pass, Barcode, Image, Biometrics

1 What is Gate pass automation system?

The purpose of this system is to automate and computerize the information and record in the institution or big enterprises. Now-a-days big ventures have number of people working under them, it becomes impossible to keep track on every worker or contractor. Workers might be on daily basis so keeping track on them becomes a hectic problem.

First of all, one card is issued to the person whom you like to give the privilege to enter into your premises or to update the database. The card contains one program and a security code. The security code is generated randomly. This security code is compare with the database that we have and if the security code matches with the security code of the card then you can enter the premises. But, this card and the card reader have some problem and it may lead to the any of the penetration of security.

- First of all, if the person, to whom the card has been issued, can give his card to some other unauthorized person or it may be stolen. Before the reporting to higher authority and before blocking the access of that card one may misuse that card.
- Card may damage or can cause malfunction and in meantime person can't enter in to premises where there may be some urgency.

To avoid these stuffs we can use a new gadget called "Fingerprint Reader" and "Image scanner". Where the "finger print" and "image" of the authorize person will be taken and store into data storage. Then, at the time of entering the fingerprint of the person will be compared with the fingerprint save in the data storage. This are the more secure and more reliable and expert are thinking that these are the future security application which will replace the card reader. After which you can

generate a "Barcode" for the given information so as to keep the information more secured and to easily access in large enterprises and ventures.

2 BACKGROUND:

To provide security and data inconsistency, data integrity, data reliability, one card is issued to the person whom you like to give the privilege to enter into your premises or to update the database. The card contains one program and a security code. The security code is generated randomly. This security code is compare with the database that we have and if the security code matches with the security code of the card then you can enter the premises. But, this card and the card reader have some problem and it may lead to the any of the penetration of security.

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3 FINGERPRINT SCANNER:

This device which is used for taking input data from visitors, contractors and employees. It's not a difficult job for both administrator and user. User needs to keep his finger on device front glass panel and finger print scanner will take impression of finger within fraction of seconds. It will help to reduce manual efforts of administrator and visitors time of filling the fields related to enquiry form or visitors log in form.

4 INBUILT CAMERA:

The system will be loaded with inbuilt front camera. As and when user associated with the system will approach to it the camera will automatically start working on image of user. When system will get satisfactory inputs about user from user form then camera will capture the image of user which will be stored back to the database and associated information about user so retrieved as and when required.

5 Comparison with current working application:

Now-a-days security has become a primary purpose for any institute, industries etc. With crime rates up, many residents, industrialist feel uneasy about relying solely on the protection of the law. With continued technological advancements, there is no reason not to look into additional security. A home security system is a great way to provide extra protection for you home or business. Hence it gave birth to biometrics. But still there is no guarantee of full security as many fake identification is done; even fake vehicle registration is seen.

So to overcome this problem ConSt softwares has taken the decision to make a gate pass software with kiosk machine, so we can avoid the entries which is bluff, fake etc.

With the help of our company guide we surveyed with few major companies like secugen, digital persona, suprmo etc. We then decided to work with digital persona as their product was more secured. For our security software we studied few worldwide published papers and decided to refer NSTC papers.

Table of Description:

Process	Descriptions
1.0 Login	Admin and Guard user login to VIMS by supplying username and password. VIMS compares the validity of inserted username and password with login credentials stored in table Login.
2.0 Register Visitor	Guard register new visitor by supplying visitor information to VIMS. Visitor is assigned with the first available visitor pass ID from table vPass. Visitor information is recorded into table Visitor and visit details are recorded in table Archive.
3.0 Print Report	Admin is responsible to generate daily and monthly report. Admin inserts date of report to be generated. Report items are taken from table Archive and its corresponding visitor's details from table Visitor based on date of report.
4.0 Search Visitor	Admin inserts visitor information to be search. Search results are taken from table Archive and its corresponding visitor's details from table Visitor.

Table 1

2 System Architecture



Fig 2

The system architecture consists of the following components:

1. Multiple gates
2. Some network connection like LAN, WAN
3. Database server
4. Terminals

Entry can be made through any gate as all gates will have security personnel to check the visitors and their id's.

Database server is needed to store the data which is taken from the visitors and retrieve it whenever needed.

Also the terminals are used to transfer messages to administration or vice versa and for passing the messages some kind of network connection is needed depending on the terminals used.

Modules Used

4.1 Bar code Generator

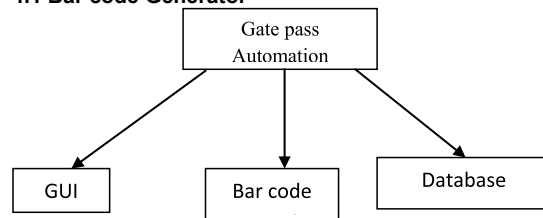


Fig 4

These are the main modules used in **GATE PASS AUTOMATION**.

The modules are stated below:

1. GUI:-

In computing, a graphical user interface is a type of user interface that allows users to interact with electronic devices with images rather than text commands. GUIs can be used in computers, hand-held devices such as MP3 players, portable media players or gaming devices, household appliances and office equipment.

A major advantage of GUIs is that they make computer operation more intuitive, and thus easier to learn and use. For example, it is much easier for a new user to move a file from one directory to another by dragging its icon with the mouse than by having to remember and type seemingly arcane commands to accomplish the same task.

Adding to this intuitiveness of operation is the fact that GUIs generally provide users with immediate, visual feedback about the effect of each action. For example, when a user

deletes an icon representing a file, the icon immediately disappears, confirming that the file has been deleted (or at least sent to the trash can). This contrast with the situation for a CLI, in which the user types a delete command (inclusive of the name of the file to be deleted) but receives no automatic feedback indicating that the file has actually been removed.

In addition, GUIs allow users to take full advantage of the powerful multitasking (the ability for multiple programs and/or multiple instances of single programs to run simultaneously) capabilities of modern operating system by allowing such multiple programs and/or instances to be displayed simultaneously. The result is a large increase in the flexibility of computer use and a consequent rise in user productivity.

2. Bar code Generator:-

Whenever new visitor comes across the system using bar code generator algorithm system creates one barcode to uniquely identify user whenever user log outs the system.

The mapping between visitor information and barcodes is called a symbology. The specification of a symbology includes the encoding of the single digits/characters of the visitor name as well as the start and stop markers into bars and space, the size of the quiet zone required to be before and after the barcode as well as the computation of a checksum.

3. Database:

This is the most important module. It contains all data regarding bar code generated by the system and particular visitor associated with that code. This can be retrieved as when required for data processing and report making.

4 Fingerprint Processing

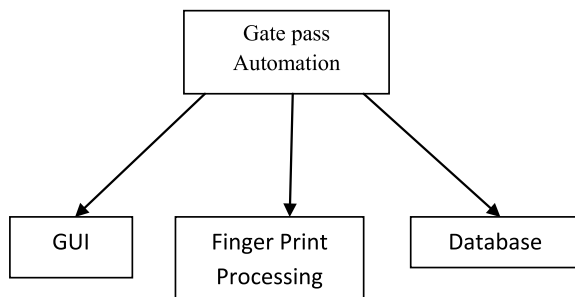


Fig 5

These are the main modules used in GATE PASS AUTOMATION.

Acknowledgement

We would like to thank all the researchers working in this field who in one way or another guided us in achieving our goal.

Conclusion

The goal of this project has been to use bio-metrics and standard input technology in order to enhance the data recording experience. This has been proved to be possible from a technological viewpoint through the proof-of-concept implementation of bio-metrics system. It basically showed that it is possible to create central location and report view of visitor, contractor and employee attendance record as a results of a verification of visitor, employee and contractor by fetching stored information from a DB regarding barcode generated by system, and image captured by inbuilt cameras provided by user machine.

In addition the application is implemented as a barcode generator and repository system that helps admin to create report and navigate through employees, contractors and visitors reports and information. The application works on KIOSK machine only since it relies on touch button panel. Future extensions may look at work from home options such as working from remote location and attendance will be added accordingly hour bases and other service or resources can be available online for user.

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