

**AT89C51 MICROCONTROLLER BASED BANK SECURITY SYSTEM**

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**ABSTRACT:**

The project could be a technique for automatic security system for Bank, industries , offices. a novel design of occupancy sensors includes entry/exit sensors for detective work movement through doorways, space |the space |the area} motion sensors for detective work room occupancy. A central embedded controller communicates with the sensors and controls the devices. the current project provides a system for security system for a home with . This project is meant around a microcontroller that forms the management unit of the project. in line with this project, any United Nations famed person stepping into the area is detected and is displayed. with the exception of this, it'll offer terribly high security for home once we don't seem to be on the market in home is used with nice potency. this can be realised victimisation IR sensors. this project finds its place in places wherever the items needed to be done mechanically with utilization of security in economical and effective manner.

**Index Terms— Security systems, biometrics, digital (electronic) code locks, authentication, Iris Scanner, Vein Detector, Unique Password, Registered Identification Number, Wireless motion detector**

**1. INTRODUCTION:**

The present system of security isn't terribly economical because it is simply faked by the sensible larceners as they will find of the keys or the passwords. conjointly it's a conscientious job for the administration of the banks to stay an account of the locker activities as there's no dedicated worker appointed for this. to induce obviate these problems, bank security system like this one is {required} that doesn't require any

manual presence of the officer. This conjointly reduces the waiting time of the purchasers. once any new client needs to open a bank locker, they' respesculated to get there iris scan and vein recognition scan done [1]. they're conjointly given a singular word and another word is any registered proof just like the driver's license range, passport range, citizen id range or the other government licensed proof is additionally

manufactured from. they're conjointly speculated to offer alternatives to any or all the higher than samples so it is accustomed access the lockers just in case of any mishap. The motion detector that functions in night helps in safeguarding the locker space for any larceny moreover. stored templates. d) when this, the comparison is rated and if it crosses the edge level then they're etch instead it provides an added attempt

## II. TECHNOLOGIES USED

### A. Iris Scanner

A vein identity verification could seem to be one thing that is incredibly innovative however it's an easy CCD (Charge Coupled Device) camera that uses visible and near-infrared light-weight to capture a transparent, high-contrast image of an individual's iris. the employment of near-infrared light-weight is to differentiate the pupil and iris of an individual as an individual's pupil is incredibly black, creating it straightforward for the pc. once we investigate associate degree iris scanner, the camera, that is three to ten from your eyes, takes an image, the pc locates: a) the middle of the pupil b) the sting of the pupil c) the sting of the iris d) The eyelids and eyelashes, then analyzes the patterns within the iris and interprets the mintoa model Iris scanners have become a supply of authentication f somebody as everybody has distinctive eyes [2][3]. There are more than 200 reference points stored in every template for comparison. Though the iris is visible its protected, and does not change with time. In most cases, people's eyes even remain unchanged post an eye surgery. Even the blind people (with irises) can use this facility. Also, the presence of eyeglasses or

contact lenses does not cause interference. The hardware part of wireless iris recognition system is made up of iris recognition verifying module, microcontroller, power module, real-time clock module, and LCD display module. Figure 2 shows the architecture of hardware design. Microcontroller 8051 is interfaced using RS232 interface in the form of transmitting and receiving data packet with the output of the CPU.

### B. Vein Detector

As mentioned just in case of irises, each individual's veins are fully distinctive. Even the twins do not have identical veins. the correct and left sides of any individual's veins also are completely different. Most of the veins aren't visible through the skin, and therefore can't be merely solid or fiddled with. like to the case of iris, their form doesn't modification with age. during this system, you'll be able to use your finger, wrist, palm or the rear of your hand to scan. The near-infrared lightweight is employed by the camera to capture the image. the sunshine is absorbed by the hemoprotein and also the veins seem to be black in image. This image is employed to form a guide that is keep so compared whenever needed.



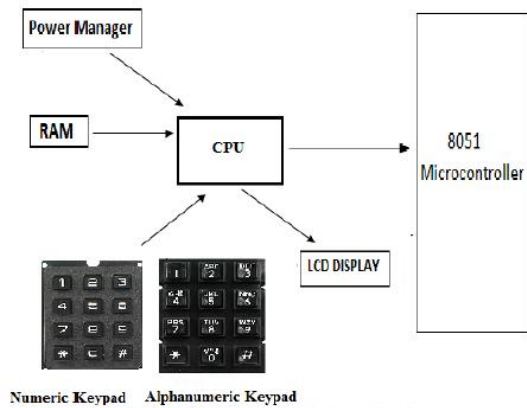
Fig 3. Vein Detector

The hardware design consists of a Near-infrared Camera that may be a device supposed for capturing of the veins patterns. they're processed for verification by the C.P.U. by the advanced Programming Logic style (CPLD). The device consists of associate degree light unit with infrared diodes (recommended wavelengths ar around 900 nm), a digital signal processor is hooked up for video pre-processing and image sweetening and process. Then, there's a microcontroller to regulate the peripherals. The memory is gift to store the enciphered templates. once a limb is placed in its near region of the LED supply, it radiates the infrared rays on the hand so the IR camera captures the image of veins so stores them. Figure four shows the branch of knowledge arrangement.

**C.DIGITALCODELOCK**

This is a lock that not like the on top of 2 isn't common to the locker cluster. It's on an individual basis put in at the door of each locker. this can be a micro chip based mostly digital lock system that gets open if the properpositive identification is entered. The positive identification is numeric with none characters. The positive identification of vi numbers is obligatory. This lock is interfaced with the microcontroller and includes a memory with it for the storage of positive identification [4]. the complete system isn't thus high-priced and thence is put in at each locker. this may evidence the person and can act as a medium to steer the locker holder to successive level of validation. this may be issued to the holder once they want the locker and might be modified solely by

the licensed bank officers once their validation is completed. There ar 3 trials given, if the validation isn't done then the system offers at risk signal and therefore the authentication fail. This lock consists of a alphanumeric displayscreen, keyboard and a micro chip 8051.. The design has been shown in figure 5.



Numeric Keypad Alphanumeric Keypad  
Fig. 5.Architecture of Digital lock

**D. Identification Number**

Quiet the same as the on top of digital code lock, it works on identical principle. this is often the sole issue that identifies the user because the registered nationalist because the word here is that the government registered positive identification. It are often something driver's licence, passport, voter id, PAN card or the other proof. this is often identical because the one used for the identification purpose whereas gap associate account or a locker. this is often set by the bank administration when verification. this is often the last step of authentication, when this the locker are often accessed. this is often often associate alphamerical key and also the variety of characters depends on the proof used.

This once more provides you 3 probabilities to validate yourself and access the locker. when the trials are given, any longer entry can provide siren to the bank officers. The hardware is that the same as within the on top of digital clock simply with the presence of associate alphanumerical computer keyboard rather than a numeric one.

### ***E. Wireless Motion Detector***

Motion detection sensors are revolutionary security equipments that provide glorious security to banks. they will find any quite physical movement in their geographical region and might elicit alarm with the assistance of infrared heat sensors. The crystals, that show pyroelectrical impact i.e. if they encounter any slightest amendment within the infrared radiations within the kind of heat they generate current on their surface, are the fabric that are used as thermal sensors [2][3]. each physical body emits actinic radiation that is around nine.4 micrometer in wavelength. Hence, motion of any human ends up in changes in native actinic radiation pattern within the locality of the device. With the employment of 'Fresnel lens', the radiation may be targeted on the device. As this can be created to perform solely in night there's no risk that any daylight connected temperature changes triggers the response of a motion device unnecessarily. Wireless motion detector consists of 8051 microcontroller and PIR device module. PIR device could be a three pin connector: VCC, output and ground. Whenever a motion is perceived, its voltage reaches its peak. Microcontroller manages the voltage of collector of the semiconductor. Throughout traditional conditions, semiconductor is brought to a

halt and collector voltage at its high. once the motion is perceived, the high output from the device module saturates the semiconductor and therefore the voltage at the collector drops all the way down to logic low and therefore the alarm is switched on.

### **III. FLOW OF CONTROL**

The bank locker features a series of equipments. Once the person enters the locker space, he/she must endure four authentication tests. 1st among them is that the iris scan. during this take a look at the iris of the person is scanned employing a special machine, that compares the iris with the scanned records hold on at the time of gap of the account. After this, ensuing step is vein detection. every one features a distinctive vein position and this detector would compare gift vein model with the hold on templates. If none of those 2 tests are cleared then the alarm would be raised. however if anyone of the authentication tests is being cleared then ensuing step is that the digital code lock {in that| during which within which} someone must enter a singular code which is given to each account holder throughout the gap of AN account. the ultimate step is that the range within the registered identification card. One must choose the identification proof that was submitted throughout the gap of AN account and also the matching code must be entered. All the ultimate outputs of those equipments are interfaced with AN8051 microcontroller that checks for authentication. Out of the four levels if any 3 outputs are valid the locker opens. this is often terribly useful in some ways [4][5]. In case, someone fails to bring his registered number or has lost his possession, he will still manage to open

the locker if the opposite 3 authentications are positive. Similarly, if somebody is unable to validate the primary 2 scans, AN alarm is raised by the system. The wireless motion detector is programmed in such the simplest way that it works once the bank's closing hour until the time the bank opens. It will even work on specific days once the bank is off.

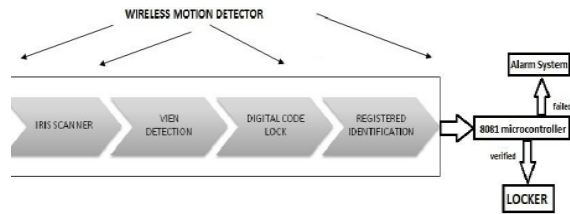


Fig. 6. Block Diagram of the flow of control

#### IV. CONCLUSION

This is a true time application primarily based paper that tells that there is a have to be compelled to herald a revolution within the bank locker security system by creating the procedure a bit simple and a lot of systematic for the bank officials. this can be simply a projected model which once enforced would sure provides a superb protection of the lockers larceny and creating the lockers a lot of reliable. the peace of mind can[it'll] offer to the bank customers will force them to use it and thus shield their valuables from larceny or any quite theft. This not aims at easing the work load of the bank official however conjointly makes it a simple and comfy method for its users, the overall public. As this {can be} shielded by the neighborhood sensing element thus can find any unwanted or forced entry within the bank locker space and might protect the lockers n the lockers within the best approach.

#### REFERENCE

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