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Sixth Sense Hand-Mouse Interface Using Gestures&Randomized Key

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ABSTRACT:

AUTOMATED teller machines in their modern form have been around for almost 50 years. And, given that ATMs represent an apparently unattended box packed with cash, criminals have been keen on them for all that time. But attacks on cash machines — to steal not only money but customer data too — have been increasing significantly in recent years. How can they be stopped? ATM Security has always been one of the most prominent issues concerning the daily users and the not so frequent ones as well. While the ATM is used in large amount in the commercial banks and postal savings to deposit and draw conveniently and praised by the users, but dispute cases and financial crimes about it are increasing day by day. This paper emphasizes on the hypothetical, yet very possible scenario of an individual s ATM machine Security with a low but Efficient cost hardware system. Our proposed model uses certain factors which would be monitored right from the initiation, to the end of the respective transaction. We have proposed a sixth sense Atm which uses No touching of any objects but by just using your gestural interface it lets us do the normal operations of ATM authentication system. Also it uses a High alert security system for reducing or eliminating Atm thefts.

Keywords--ATMSecurity;Contactless;SixthSense;Hand Gesture.

Introduction

If you ve been standing in a queue to withdraw money from an automated teller machine (ATM), here s something you need to be cautious of. The keypads of the machine may be loaded with bacteria from spoiled food to parasites that may also cause sexually transmitted disease (STDs), researchers say.

Automated teller machine (ATM) keypads represent a specific and unexplored microhabitat for microbial communities.

Our results suggest that ATM keypads integrate microbes from different sources, including the human microbiome, foods, and potentially novel environmental organisms adapted to air or surfaces, said Jane Carlton, Professor at New York University, US. DNA obtained from ATM keypads may therefore provide a record of both human behaviour and environmental sources of microbes, Carlton added.

The researchers in June and July 2014 took swabs of keypads from 66 ATM machines from Manhattan, Queens, and Brooklyn, in the US. Specifically, the most common identified sources of microbes on the keypads were from household surfaces such as televisions, restrooms, kitchens and pillows, as well as from bony fish, mollusks and chicken.

Residual DNA from a meal may remain on a person s hands and be transferred to the ATM keypad upon use, the researchers suggested. ATM keypads located in laundromats and stores had the highest number of biomarkers with the most prominent being Lactobacillales (lactic acid bacteria),

which is usually found in decomposing plants or milk products.

In other samples, the researchers observed the biomarker Xeromyces bisporus, which is associated with spoiled baked goods. In addition, the team found a parasite typically seen in the gut of humans and other mammals, along with a species closely related to the human parasite Trichomonas vaginalis, which can potentially cause STD.

However, there is no significant difference was found in the keypads from ATMs located outdoors versus indoors, the researcher noted, in the paper published in the journal mSphere.

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I. PROPOSED SYSTEM

Reasons for the proposal:
In a survey it was found that Atm machine server as 3 best devices in transmitting diseases.Also it is visible thing that ATM security system faces a Flaw nowadays
Existing system:
 In the Existing the Transactions are Touch based he total security of the Atm machines are in the hands of Security personnel who reside near the ATM
Demerits:
 Possibilities of tracking Pin numbers from Touch & contacting communicable diseases are high. The securities near ATMs are not highly trained security men leading to ATM theft & other major Issues
Proposed system:
In order to ensure the security of the bank property & to have a Hazzle free Transaction we Propose a Color based non contact / or sixth sense technology ATM for transactions & security system for Guarding the ATM as well as the person using the ATM.in short the System is divided into 2 modes namely
Contactless ATM:
We use the color bands used in Sixth Sense Technology to do all the Transaction which is done by pressing the keys in a ATM machine. A matlab interfaced with Webcam is used for serving as contactless Mouse for this process. This interface does all the Transaction which can be done using a mouse.
Security Issues:
This system has an option for finding the Entry & Exit of persons in a ATM counter. The time a Person spends in an ATM machine is not noted & if it goes beyond a Certain Limit a Alarm is generated which makes the rity personnel to invigilate the Situation .We do have a Infrared sensor which will start up the main camera and record the face of the cardholder when he starts the transaction .By doing so each & Every transaction is Stored in the Database along with the Image of the Person who does the Transaction.There is a temperature sensor connected to the Atm Machinery which registers the Temperature. If this sensor gives a high temperature Alert a Alarm is generated. This avoids the possibility of Atm machine being Cracked by using a Heat source.A Vibration or a XYZ accelerometer is connected to the Machine to find whether the Machine is shaked ,a possibility of a theft in this case can also be saved by generating a Alarm.A sound sensor is also placed which gives an Alarm incase high sound is found in the Atm. This reduces the Possibility of cases like Bangalore Atm mishap.

II. SENSOR TO DETECT HUMAN OBSTACLE

A. IR Object Senor

The IR Object Detection sensor module is quiet easy to make. This sensor circuit below is a low cost - low range infrared object detection module that you can easily make at home using IR LED's. The Maximum input Voltage is 5 Volts. We will use a photodiode and IR LED to make a simple circuit. IR led looks like a regular LED that you usually see in Television Remote controls.For now I have added a regular LED to glow as in indicator when something is detected, you can replace it with a buzzer or something else the way you wishThe Main concept is simple, the IR led keeps transmitting IR infrared rays up to some range (there is a potentiometer also in the design with the help of which you can alter the range). When some object comes in the (IR) infrared range, the IR waves hits the object and comes back at some angle, The Photo diode next to IR led detects that IR infrared rays which got reflected from the object and hence works as a proximity sensor. You can read more details about Proximity sensors for more.
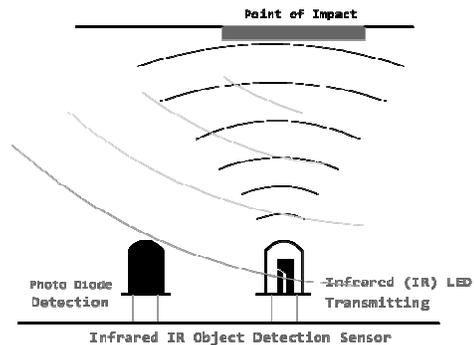

Fig.3.1 Infrared Sensor

B. SOUND SENSOR

Sound sensors work by detecting differences in air pressure and transforming them into electrical signals. Sound Sensor is also a digital Sensor. It is used to detect the sound more than the certain decibel inside the ATM room.

Fig.3.2 Sound Sensor

C. Temperature Sensor

Temperature Sensor is an Analog Sensor.ADC 0809 is used to convert the analog output of this Sensor into digitized output.
It is used to detect the Temperature in case of fire problems. A thermistor is a thermally variable resistor. Its electronic resistance can be approximated to the variation in temperature. This can be used to estimate the actual temperature. The thermistor in which the resistance increases with respect to the increase in temperature is called as positive temperature coefficient thermistor and in which the resistance decreases with respect to the decrease in temperature is called as negative temperature coefficient thermistor. In the proposed model a negative temperature coefficient thermistor is used. The resistance variation with respect to temperature in it is found to be linear and similar to the ideal characteristic curve of a negative temperature coeff-thermistor. In the proposed model the thermistor is used in a potential divider unit to measure its electronic activity. The output of this circuit is interfaced to the ADC channel. From the potential divider circuit a varying potential is measured by the ADC unit in the microcontroller with respect to the temperaturechange.
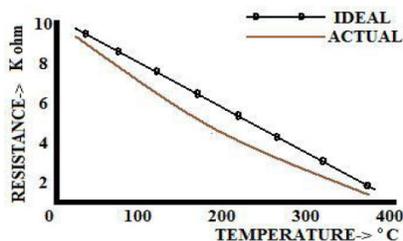

Fig.3.3 Temperature Resistance

D. Vibration Sensor

The piezoelectric sensor is used for flex, touch, vibration and shock measurement. Its basic principal, at the risk of over simplification, is as follows: whenever a structure moves, it experiences acceleration. A piezoelectric shock sensor, in turn, can generate a charge when physically accelerated. This combination of properties is then used to modify response or reduce noise and vibration. Vibration Sensor is a Digital Sensor.It is used to detect when the ATM machine is shaked or moved.

III. CONTACTLESS OPERATION
A. RFID Card Reader

Radio-frequency identification (RFID) is a technology that uses communication via radio waves to exchange data between a reader and an electronic tag attached to an object, for the purpose of identification and tracking.It is possible that by 2030, RFID technology will have inserted itself into our daily lives the way that bar code technology wrought unobtrusive but remarkable changes when it was new.
RFID technology makes it possible to give each product in a grocery store its own unique identifying number. Compare that to the situation today, with bar codes, where it is only possible to identify the brand and type of package. Furthermore, RFID tags can be read if passed within close enough proximity to an RFID tag reader. It is not necessary to "show" them to it, as with a bar code.Some tags can be read from several meters away and beyond the line of sight of the reader. The application of bulk reading enables an almost-parallel reading of tags.Radio-frequency identification involves interrogators (also known as readers), and tags (also known as labels).
Most RFID tags contain at least two parts: one is an integrated circuit for storing and processing information, modulating and demodulating a radio-frequency (RF) signal, and other specialized functions; the other is an antenna for receiving and transmitting the signal.
In our project instead of using Smart Card we are going to use RFID card. So that it will be more authenticated no duplicate card will be described like same RFID card.

IV. PERSONAL COMPUTER

Personal computer is used for form design and the images will be displayed on the screen.In the industrial design field of human machine interaction, the user interface is the space where interaction between humans and machines occurs. The goal of interaction between a human and a machine at the user interface is effective operation and control of the machine, and feedback from the machine which aids the operator in making operational decisions. Examples of this broad concept of user interfaces include the interactive aspects of computer operating systems, hand tools, heavy machinery operator controls, and process controls. The design considerations applicable when creating user interfaces are related to or involve such disciplines as ergonomics and psychology.
A user interface is the system by which people (users) interact with a machine. The user interface includes hardware (physical) and software (logical) components. User interfaces exist for various systems, and provide a means of:Input, allowing the users to manipulate a system, and/or Output, allowing the system to indicate the effects of the users' manipulation.

B. Camera Interfacing

Here we are using webcam for gesture recognition. In our project we are going to fix it in top of monitor for preview the

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password. Person password is given in symbols with some gesture is captured in preview size window and retrieved.

C. Image Recongnize

Using web cam the image will be captured and stored at a location. Using .net matlab process will automatically calls the location with the use of color recognition. Intensity of color is mentioned and the image captured through intensity of the color.

D. Data Storage

From that data will be retrieved and process is done.

V. MICROCONTROLLER

A microcontroller (also MCU or μC) is a small computer on a single integrated circuit consisting of a relatively simple CPU combined with support functions such as a crystal oscillator, timers, and watchdog, serial and analog I/O etc. Neither program memory in the form of NOR flash or OTP ROM is also often included on chip, as well as a, typically small, read/write memory.

Fig.4.1 Microcontroller

Microcontrollers are designed for small applications. Thus, in contrast to the microprocessors used in personal computers and other high-performance applications, simplicity is emphasized. Some microcontrollers may operate at clock frequencies as low as 32 KHz, as this is adequate for many typical applications, enabling low power consumption (mill watts or microwatts). They will generally have the ability to retain functionality while waiting for an event such as a button press or other interrupt; power consumption while sleeping (CPU clock and most peripherals off) may be just nano watts, making many of them well suited for long lasting battery applications.

Microcontrollers are used in automatically controlled products and devices, such as automobile engine control systems, remote controls, office machines, appliances, power tools, and toys. By reducing the size and cost compared to a design that uses a separate microprocessor, memory, and input/output

devices, microcontrollers make it economical to digitally control even more devices and processes.

Dedicated Pulse Width Modulation (PWM) block makes it possible for the CPU to control power converters, resistive loads, motors, etc.,without using lots of CPU resources in tight timer loops.UniversalAsynchronous Receiver/Transmitter (UART) block makes it possible to receive receive and transmit data over a serial line with very little load on the CPU.

VI. HAND MOUSE

It is the tip of the user s fingers. Marking the user s fingers with red and blue tape helps the webcam recognize gestures.
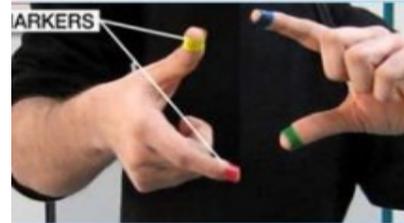

Fig.7.1 Color Makers

The movements and arrangement of these color makers are interpreted into gesture that act as interaction instructions for the projected application inerfaces.

VII. FUTURE ENHANCEMENT

In the future this project can be elevated to an IOT based transaction system.The number of sensors for security can be increased.

VIII. REFERENCE

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