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Intelligent Banking Machine For Visually Impaired

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Abstract-
The technology is getting updating day by day which is making the educated people to easily operate the mobile phone and using ATMs for daily banking. But it becomes somewhat critical for blind/old people to operate the mobile phones for using internet banking and while using high security password. The blinds can be easily trapped when they use the password via a phone or ATM center. This project "Intelligent Banking Machine for Visually Impaired" will provide an easy method for the blind people to call to access the need. In this method we are having virtual keypad for selecting the numbers or strings to require for the high security password. A head set is also used for listening facility. The main advantage of this thesis compared to the other existing systems are interfacing with microcontroller and it is possible to monitor and control the devices also. Previously hard keys are used but now a day's soft keys are used, and here it is a virtual keyboard.

Introduction:

Many kind of electronic devices are inventing and increasing for man purpose. Banking is a unavoidable thing in every person's life. Each and every person is wishing to invest money in bank for future expectations. Here banking is possible for all people, even old people. But ATM banking is difficult to operate even a normal person, so how can a blind person operate. From this thesis here proof for that problem. ATM is an electronic device. Embedded system involvement in banking machine is for giving the correct details from the machine by using Bluetooth, Passive infrared sensor, Infrared sensor, LCD display so on.

Existing system

As technology has evolved and the manner in which retail banking services are delivered to the public has changed as a result, Automated Teller Machines (ATM) have proliferated. However, it has been a challenge to ensure that the increasing convenience offered by an ever-expanding number of ATMs is also made available to disabled American consumers. For example, to understand how difficult it would be for a blind person to use an ATM, a sighted individual need only close his or her eyes, approach the ATM and attempt to perform a banking transaction-any transaction.

Proposed system

The proposed system is somewhat an extension of the idea quoted above. Here the system designed is mainly on the aim to develop an **'Intelligent Banking Machine for Visually Impaired'**. Here RFID card is act as an ATM card, after inserting

the card the person entering in to the ATM cabin. Bluetooth is automatically connected to the mobile. The person gets the instructions from the ATM machine. Depends on the information, the person can enter the password and other details in the virtual keypad. If any other person watching the blind man's activity the PIR sensor can detect that person and announce through the Bluetooth. After receiving the money, regarding the balance details will be announced through Bluetooth.Through this process blind can also use the ATM machine easily and the help of Android phone than an ordinary mobile phone.

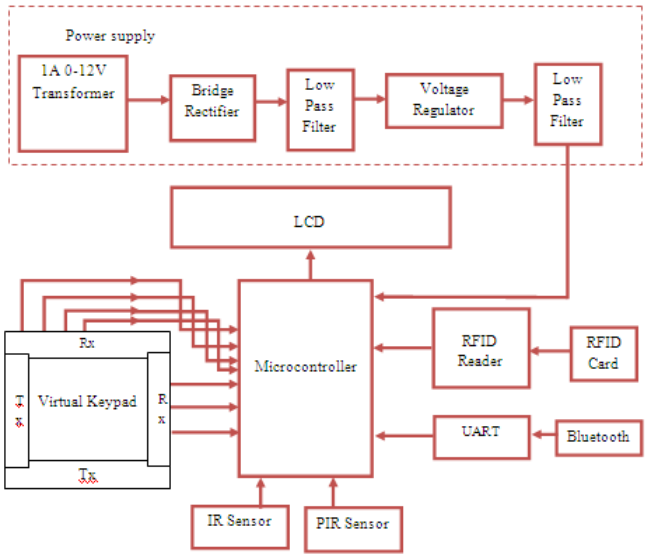
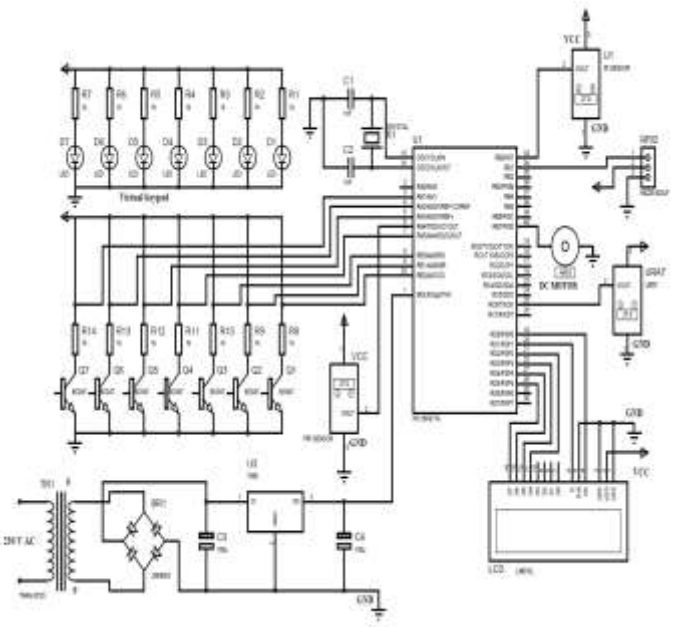


Figure 1: Block diagram

Block diagram description: Universal Asynchronous Receiver and Transmitter (UART) is connected and transmitting signals to the PIC 16F877A. UART is act as a Bluetooth connection. When a person show his/her RFID card in front of the reader RFID, after opening the door Bluetooth is automatically ON and give the instruction to the person through headset by using Android Phone. Virtual Keypad-When the person's RFID card reads by the reader RFID the virtual keypad enables. The keypad is in 4X3 matrix. LED and Photo transistor is used for the keypad proper working. Radio Frequency Identification (RFID) that act as a ATM card, which is show in front of the reader Automatic Identification and Data Capture (AIDC) technologies that indicate 1 D and 2 D barcode this process is used for opening the door. RFID is the wireless non contact use of radio frequency electromagnetic fields to transfer data, for the purpose of automatically identifying and tracking tags attached to objects. PIR is used to direct the person in a correct way towards ATM machine. It is definitely is the broken fields for a "normal" temperature. Infrared (IR) sensor is used to indicate the person who reached towards to the ATM machine. The control section makes use of PIC Microcontroller PIC16F877A. This 8bit Microcontroller is used to read the status of the sensor and update output and it control all the input and the output units. The output consists of voice playback, LCD . Voice playback which means the instructions given to the blind person through the headset for direct the person to reach the ATM machine. LCD is to show the details but it actually not useful to the blind people.

Circuit diagram:



The system designed is mainly on the aim to develop an '**intelligent banking machine for visually impaired'.** A 5V DC power supply is easy to construct due to the availability of monolithic voltage regulator such as the 7805 positive 5v regulator which provides good regulation as well as automatic thermal shut down and short circuit overload protection.

The circuit consist of a 230 V 1A AC is given to the transformer, a full wave bridge rectifier , the 7805 IC voltage regulator and some ripple smoothing capacitor , this section act as a power supply. The four diode comprising the full wave bridge rectifier can be replaced with a four terminal potted version.

Form this power supply unit the supply given to the main power supply of PIC16F877A, pin 1. Pin 1 have 5V, and active low reset to the device. Pin 11 and 33 is 5V power and pin 12 and 33 is ground.

Pin 13 and pin 14 is crystal oscillator input/external clock source I/P. 20 MHz crystal is connected for removing spikes and low value capacitor (33pf) is connected with crystal oscillator.

In PORTB is a bidirectional I/O port pin 34-RB_1. It is a digital I/O pin. RFID sensor is connected in pin 34. Pin 33 is an external interrupt pin IR sensor is connected to it. Pin 33 is connectively low and IR sensor is high. The RFID is used instead of ATM card. And the entering into the ATM cabin, IR is used in the keyboard section and

In PORTA, is a bidirectional I/O port Pin 6-RA_4 can also be the clock I/P to the Timer 0 timer/counter. Output is open drain type. PIR sensor is connected to the pin 6. PIR sensors allow you to sense motion, almost always used to detect whether a human has moved in or out of the sensors range. They are small, inexpensive, low-power, easy to use and don't wear out. PIR finding the presence of man in the cabin other than the blind person.

In PORTC a bidirectional I/O port. Pin 25-RC_6/TxCK can also be the UART asynchronous transmitter or synchronous clock. UART is connected in Pin 25-C_6Rx pin from the UART transmitter pin. BlueLINK is act as a UART; BlueLINK is a Bluetooth which help the person to hear the details through the help of headset from the phone.

In Virtual keypad, LED and phototransistor combination is 4X4 matrix. The high voltage is transmitted. If there is any interruption between the voltages transmission that key number is stored in the memory. From pin3 to pin 10 is connect das a virtual keypad. The two adjacent sides are fixed with infrared transmitter or

otherwise called as photo transmitters, and the other two adjacent sides are fixed with photo detectors. In this keyboard keeps the track of the finger and process the information according to the keystroke as similar to matrix as explained before. The key corresponding send to microcontroller and the information is heard by the blind person.

Conclusion:

The progress in science and technology is non-stop process. New things and new technology is being invented. As technology grows day by day. We can image about the future in which we may occupy every place.

Intelligent banking machine for visually impaired is mainly for blind people. This paper contain two parts one is for sensing parameter and another part which controlling that parameter wirelessly means Bluetooth. For easy operation this process helps a blind person in ATM center. Microcontroller is another advantage in this process. Microcontroller based system also increase the reliability and sensitivity. The proposed system is based on PIC 16F877A microcontroller is found to be more compact, user friendly, and less complex

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