



## **ATM MACHINE FOR BLIND PEOPLE**

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### **ABSTRACT**

ATM stands for Automated teller machine. The system designed is a talking ATM which is a type of automated teller machine (ATM), provides audible instructions so that person who cannot read an ATM screen can independently use the Machine. Deaf blind have difficulty in communicating with others who don't understand sign language, can independently use this talking ATM machine, where a wireless data glove is a normal cloth driving glove fitted with flexes sensors along the length of each finger and the thumb. The output from sensors is a stream of data that varies with degree of bend. The sensor output is analog values, converted to digital and processed by microcontroller, then it given to the voice chip to produce voice using speaker. In this project Flex Sensor Plays the major role, Flex sensors are sensors that change in resistance depending on the amount of bend on the sensor.

**Key words:** Flex sensor, Wireless data glove, ATM, Blind users.

### **INTRODUCTION**

A cash machine is also known as automated teller machine is an electronic telecommunication device. The Automated teller machine is a self- service machine that dispenses cash and performs human teller functions like balance enquiry, bills payments, mini statements. The introduction of talking automated teller machine provides audible instructions so that persons who cannot read an ATM screen can independently use the machine.

Flex sensors are sensors that change in resistance depending on the amount of bend on the sensor. They convert the change in bend to electrical resistance - the more the bend, the more the resistance value. They are usually in the form of a thin strip from 1"-5" long that vary in resistance from approximately 10 to 50 kilo ohms. They are often used in gloves

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to sense finger movement. Flex sensors are analog resistors. They work as variable analog voltage dividers. Inside the flex sensor are carbon resistive elements within a thin flexible substrate. More carbon means less resistance. When the substrate is bent the sensor produces a resistance output relative to the bend radius. With a typical flex sensor, a flex of 0 degrees will give 10K resistance with a flex of 90 degrees will give 30-40 K ohms. The Bend Sensor lists resistance of 30-250 K ohms. In this system we used microcontroller, a speech IC, display and also a speaker to produce the output.

## **EXPERIMENTAL**

### **Hardware description**

#### **ATM Machine**

A cash machine is typically made up of the following devices. CPU (to control the user interfaces and transaction devices) magnetic or chip card reader (to identify the customer) PIN pad EEP4 (similar in layout to a touch tone or calculator keypad), manufacture as part of a secure enclosure. Secure crypto processor, generally within a secure enclosure. Display (used by the customer for performing the transaction). Functions key buttons (usually close to the display) or a touchscreen (used to select the various aspects of the transaction). Record printer (to provide the customer with a record of the transaction).

#### **PIC Microcontroller**

PIC is a family of modified Harvard architecture microcontrollers made by microchip technology derived from the PIC 1650 originally developed by general instruments micro-electronics division. The name PIC initially referred to peripheral interface controller. The first parts of the family were available in 1976; used in a wide variety of embedded systems. All current models use flash memory for program storage, an never models allow the PIC to reprogram itself, 16-bit and in latest models, 32-bit wide.

#### **Display unit**

The devices made up of liquid crystal display (LCDs) like computers, digital watches and also DVD and CD players. They have become very common and have taken a giant leap in the screen industry by clearly replacing the use of cathode ray tubes (CRT).

#### **GSM/GPRS modem**

GSM (Global System for Mobile Communications, originally Group Spécial Mobile), is a standard developed by the European Telecommunications Standards Institute (ETSI) to describe the protocols for second-generation (2G) digital cellular networks used

by mobile phones, first deployed in Finland in July 1991.<sup>2</sup> As of 2014 it has become the default global standard for mobile communications - with over 90% market share, operating in over 219 countries and territories.

### Arduino mega

The Mega 2560 is a microcontroller board based on the ATmega2560. It has 54 digital input/output pins (of which 15 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button.

### RFID Reader

RFID Reader Module This is a low frequency (125Khz) RFID reader with serial output with at range of 8-12cm. It is a compact units with built in antenna and can be directly connected to the PC using RS232 protocol.

### Block diagram

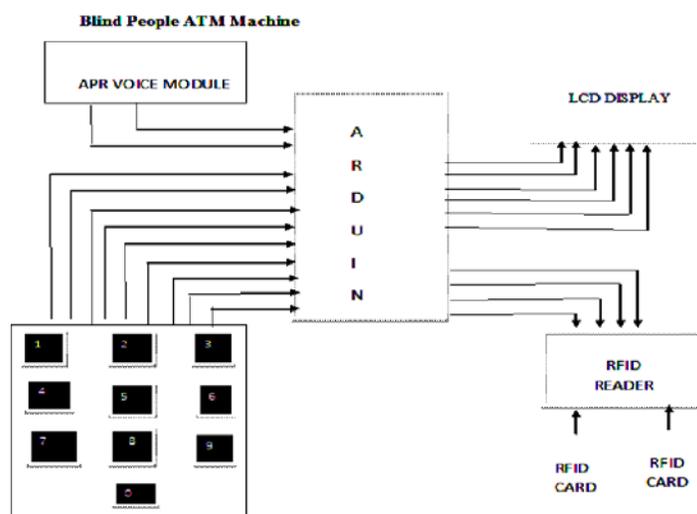
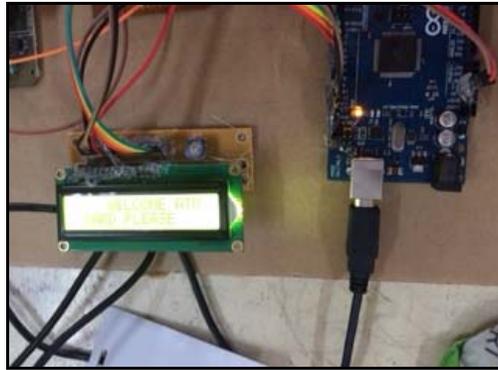


Fig. 1

## RESULTS AND DISCUSSION

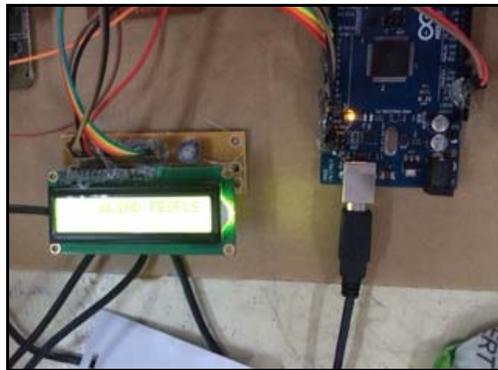
### Steps for the output

- Showing the card in the ATM Machine.



**Fig. 2**

- Identifying the person whether the person is blind or non-blind.



**Fig. 3**

- Entering the password.



**Fig. 4**

- Verifying the password whether it is correct or wrong.



**Fig. 5**

## **CONCLUSION**

In this project the system designed is a talking ATM provides audible instructions so Deaf Blind people can independently use the Machine. Deaf blind have difficulty in communicating with others who don't understand sign language, can independently use this talking ATM machine, where a wireless data card is used with flexes sensors. The output from sensors is a stream of data that varies with degree of bend. The sensor output is analog values, converted to digital and processed by microcontroller, then it given to the voice chip to produce voice using speaker. The Deaf Blind alone knows the sign language and the easily access the ATM Machine.

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