
FINGER PRINT BASED SECURITY SYSTEM

According to ancient Greek scripts BIOMETRICS means study of life. Biometrics studies commonly include fingerprint, face, iris, voice, signature, and hand geometry recognition and verification. Many other modalities are in various stages of development and assessment. Among these available biometric traits, Finger Print proves to be one of the best traits providing good mismatch ratio and also reliable. To provide perfect security and to make our work easier, we are taking the help of two different technologies viz. EMBEDDED SYSTEMS and BIOMETRICS.

Firstly discussing about Biometrics we are concentrating on Fingerprint scanning. For this, we are using FIM 3030N high voltage module as a scanner. This module has in-built ROM, DSP and RAM. In this, we can store the fingerprints of up to 100 users. This module can operate in 2 modes i.e., Master mode and User mode. We will be using Master mode to register the fingerprints which will be stored in the ROM present on the scanner with a unique id.

The project is designed to provide absolute security in industries. The persons who are the employees of the industry have to be registered initially as a sign of authentication. Thus, the fingerprints of the person will be scanned and saved in the database. A password will be given to the user along with the fingerprint. Thus, whenever the employee tries to enter into the organization, he has to scan his image to prove that he is an authorized person to the organization. Thus, the fingerprint module scans the image and sends it to the microcontroller. The microcontroller reads the image, compares the image with the already stored images in the database. If image is equals to database then message will display on 16X2 LCD display. Otherwise unauthorized message will display and buzzer gives beep sound. For authorized entry microcontroller gives pulse to connect any peripherals.

Here we use 8051 as a microcontroller with 5v DC Power supply. Serial (UART) protocol is primary concern here. The heart of this project is Bio metric module which works on serial (UART) protocol. 16X2 LCD display is connected to microcontroller through digital I/O pins.

In this prototype model step-down power supply circuit is used. First from 230Volts AC is converted as 12V AC by using a step-down transformer. Then a 1000uf capacitor is used to convert it to pure 12V DC. 7805 will convert the 12V DC supply to 5V DC along with a 100uf capacitor. This 5V DC is used for all components like microcontroller, inputs and outputs.

TECHNICAL SPECIFICATIONS:

HARDWARE SPECIFICATIONS

- Micro controller : AT89S52
- Crystal : 11.0592 MHz
- LCD : HD44780
- LED : 5mm Red LED
- Bio Metric Module
- Basic GPIOs
- Buzzer



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POWER SUPPLY

- Transformer : 12V step down
- Filter : 1000uf/25V
- Voltage Regulator : 7805 / 7812

SOFTWARE SPECIFICATIONS

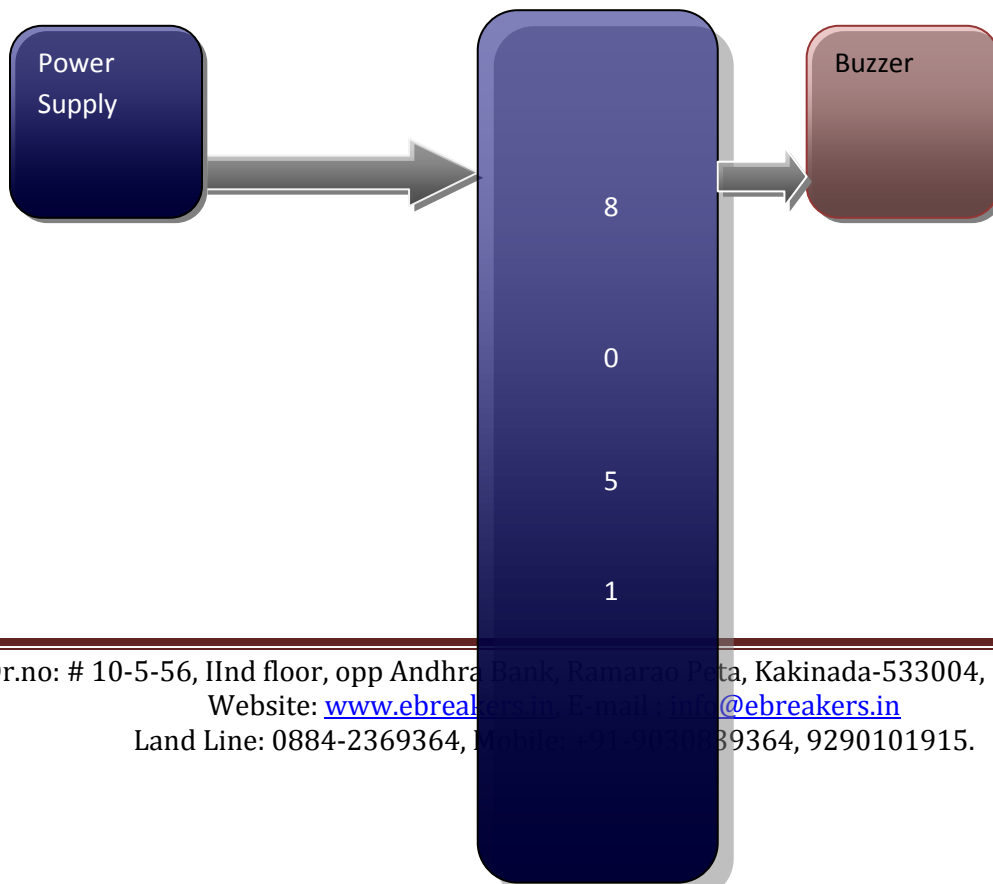
- Keil IDE
- Proteus VSM
- UC flash

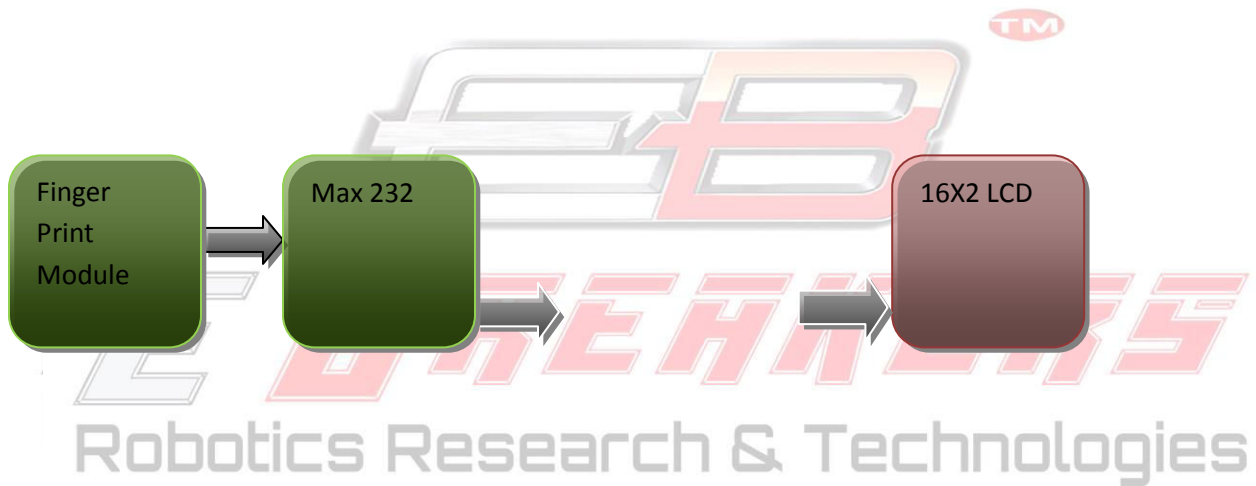
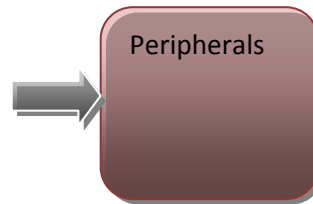
APPLICATIONS

- Industrial
- Commercial
- Home



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