VECTOR INDIA

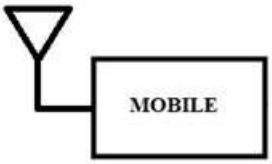
DYNAMIC OTP-DRIVEN SECURE ACCESS SYSTEM

AIM:

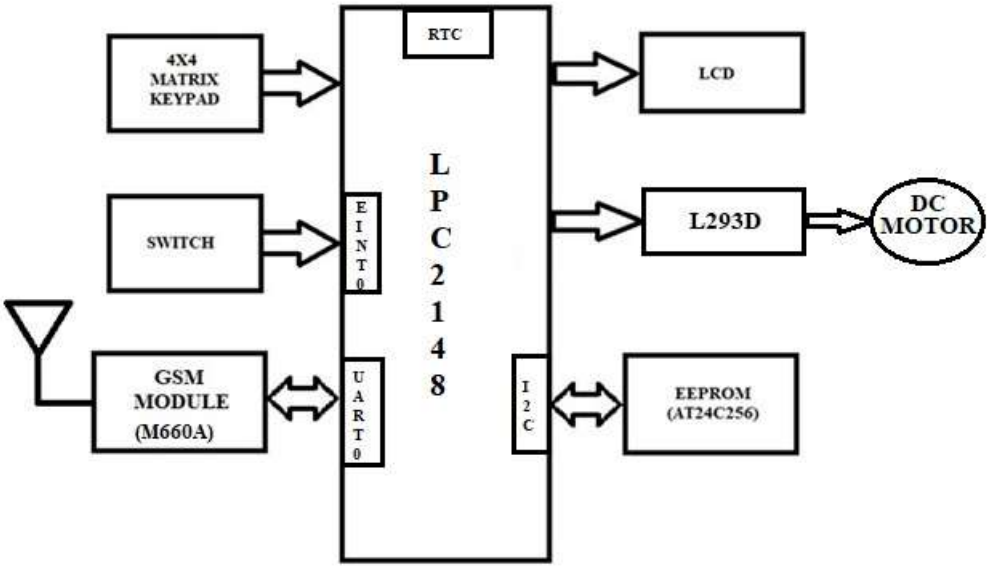
The objective of this project is to design and develop a OTP-based time-limited access control system using GSM technology.

BLOCK DIAGRAM:

USER CONTROL MODULE:



HARDWARE BLOCK DIAGRAM:



REQUIREMENTS:

HARDWARE REQUIREMENTS:

- LPC 2148
- GSM MODULE (M660A)
- 16X2 LCD
- SWITCH
- 4X4 MATRIX KEYPAD
- LED/BULB/DC MOTOR (WITH L293D CIRCUIT)
- AT24C256

SOFTWARE REQUIREMENTS:

- PROGRAMMING IN EMBEDDED C
- KEIL-C COMPILER
- FLASH MAGIC

Steps to be followed to complete your project:

- Create New Folder in your server save that folder with your project name
- Copy what you done files like lcd.c, lcd.h, delay,c, delay.h, uart.c, uart.h, keypad.c, keypad.h, i2c.c and i2c.h into project folder.
- Individually can check each and every module.
- First check lcd to display character constant, string constant and integer constant.
- Next check keypad peripheral by displaying key values on LCD.
- Next write n bytes into EEPROM and read that n number of bytes from EEPROM and display on LCD.

Note: Use BYTE WRITE and BYTE READ functions or PAGE WRITE and PAGE READ functions

- Next check uart peripheral by transmitting character constant, string constant and receive string constant using UART logic. (Note: use uart interrupt concept)
- Next check external interrupt with the help of led support.
- Read inbuilt RTC VALUES and display it on LCD
- Next connect gsm module to PC and check the gsm module working condition with the help of below mentioned AT commands.

  AT

  ATE0

  AT+CMGF=1

AT+CMGS=”Mobile Number” then enter

Gsm will give the reply like ‘>’ then you have to type the message content and press ctrl+z from the keyboard to send the SMS. This process you have to do from the hyper terminal application which is available in windows XP.

- Next Check the GSM module working condition by developing gsm_init() function and send_sms() function.

Note: GSM interfacing program has to develop with the help of UART interrupts only.

- If above steps are completed, create new file with projectmain.c add all peripheral definition files and write below steps in projectmain.c file
- Initialize all necessary peripherals
- Initially your application program is waiting for password. If user entered the password from keypad, then read the current password from the EEPROM and validate that entered password. If entered password is correct, generate the OTP and send it to user registered mobile number. Then store the OTP sent time by using on-chip RTC information. Then user need to enter the OTP from the keypad with in specific time. If user is not entered the OTP within specific time or user entered the wrong OTP then application is terminated and again it is waiting for the password.
- Whenever interrupt is generated, user has to change the password by following proper password modification process. Once password is modified successfully then updated password is saved in to EEPROM specified memory locations.
- If you’re getting this output then your project is completed.

********** ALL THE BEST **********

Note: For each AT command, need to take response from GSM module and based on positive response only need to process for other commands. Otherwise display the error messages on LCD.