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| KIET Logo | Karachi Institute of Economics and Technology Course: Computer Architecture LabClass ID: 103383 Instructor: Abuzar Zafar **Examination:** Final Lab Exam SP-20 **Date:** 5th May, 2020  **Total Marks:** 20 Marks **Max Time:** 2 hours |

# Student ID: 63805 Student Name: Syed Abbas Raza

(20 Marks)

Q1) Construct a circuit using keypad, LCD16x2, RGB LED and Arduino. In your program there will be a predefined 4character password when a user input a correct password so a message will be displayed on LCD “correct password” or incase of wrong entry it will display “wrong password”. LED will turn green when correct password is entered else it remains red

**Solution:**

#include <Keypad.h>

#include <LiquidCrystal.h>

LiquidCrystal lcd(13, 12, 11, 10, A0,A1);

char\* password = "1234";

int chk = 0;

int Lock = A3;

int Unlock = A4;

const byte ROWS = 4;

const byte COLS = 4;

char keys[ROWS][COLS] = {

{'1','2','3','A'},

{'4','5','6','B'},

{'7','8','9','C'},

{'\*','0','#','D'}

};

byte rowPins[ROWS] = { 8, 7, 6, 9 };

byte colPins[COLS] = { 5, 4, 3, 2 };

Keypad keypad = Keypad( makeKeymap(keys), rowPins, colPins, ROWS, COLS );

void setup()

{

lcd.begin(16, 2);

lcd.print("LAB\_TEST\_Abbas");

pinMode(Lock, OUTPUT);

pinMode(Unlock, OUTPUT);

LockedPosition(true);

Serial.begin(9600);

}

void loop()

{

char key = keypad.getKey();

if (key == password[chk])

{

chk ++;

}

if (chk == 4)

{

LockedPosition(false);

}

delay(100);

}

void LockedPosition(int locked)

{

if (locked)

{

digitalWrite(Lock, HIGH);

digitalWrite(Unlock, LOW);

}

else

{

digitalWrite(Lock, LOW);

digitalWrite(Unlock, HIGH);

lcd.setCursor(0, 1);

lcd.print("correct password");

}

}

