Ahsanullah University of Science and Technology

CSE 3216: Microcontroller Based System Design Lab

Fall 2020

Lab Final Quiz (Section-B)

Time: 50 Minutes(6:30 to 7:20pm)

Date: 07-10-2021

Proteus Setup+Code (20): A description of a Microcontroller-based project has been provided. You must construct all the components together to form a whole system.

Smart Jewellery Store Management:

Necessary Components:

Keypad, LCD, Buzzer, Servo Motor, LED Lights, DC Motors, PIR Sensor, LM35

Working principle:

1. The owner of the store enters the store using a password. The password is WXYZ. [6 marks]
    a. If the owner enters the wrong password, print “Wrong password!” for the first 2 times on the LCD display, on the 3rd time, print “Intruder Alert!” and turn on the buzzer alarm.
    b. The buzzer is only turned off if the correct password is typed in.
2. The entry door is automated. If the correct password is input, the door is opened 120°, then automatically closes 30 seconds later. [6 marks]
3. LED Lights(5 lights in total) and fan motors(3 motors in total) in the store gets turned on automatically as soon as motion is detected or when someone enters using the password. [4 marks]
4. Sensitive jewellery is kept in temperature-monitored cases. An LCD display shows the temperature. [4 marks]
    a. If the temperature is within P° to Q° celsius, a fan motor inside the case is turned on. If it goes below P°, the fan motor is turned off.
    b. If the temperature is above Q° celsius, the fan motor inside the case is turned on and also a buzzer goes off, alerting the storekeepers.

Here,

WXYZ = last 4 digits of your ID backwards (ex: if ID=190204001, WXYZ = 1004)

P = (last 2 digits of your ID) % 48

Q = (last 2 digits of your ID % 20) + 50