EEE316 MICROPROCESSOR

PRE-REPORT

Project Name: Stair Light

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ABSTRACT:

My project's name is stair light. I will do this using the PIC18f45K22 microprocessor. It is a project that has been done before. I will develop this project. I'll write my code in Microc and set up the circuit on the proteus. There are ready-made animations in the project and they can change them according to their choice. I will increase the number of animations. I will also add a few motion sensors and light sensors. In this way, I will ensure that the LEDs light up during the passage of people. I will also add speakers to the ladder. In this way, a sound will be released to accompany the animations.

PROJECT REQUIREMENTS:

- PIC18F45K22
- RGB Leds
- LCD Display
- keypad
- Shift register
- Demultiplexer
- Toggles
- Transistor
- Motion sensor
- Light sensor
- Speaker

GENERAL ALGORITHM

First of all, there will be a menu on the screen. Motion sensor or ready-made animations settings can be selected in the menu. I will be able to turn the light sensor mode on and off from the settings. Thanks to the light sensor, unnecessary burning of the lights will be prevented. If there is light in the environment so bright that the LEDs do not appear, it will be detected by this sensor. And when the sensor detects this light, it will stop the LEDs from burning. So I will make sure it doesn't work in vain. I will achieve this using interrupt.

I will add motion sensors to the ladder. The motion sensors I added to the ladder will determine which lights will turn on. The leds on the steps with a person passing the ladder will light up. In addition, thanks to this sensor, I will add sound along with the lights on the stair steps. For example, the notes will get thicker as you go up the ladder. In addition, if the motion sensor detects someone at the beginning and end of the ladder, there will be a warning sound. In other words, it will be a warning for someone who cannot notice the ladder.

The other option in the menu will allow me to play the animation that is ready by not using the motion sensor. You can then choose which animation to play. I'll add a few more animations. The color of the LED used in the animation can also be changed.

The other section in the menu will be the settings menu. I will be able to turn the light sensor I added here on and off.

INTERRUPT :

I will add the light sensor to the code using interrupt. So I will be able to exit the code above a certain brightness.

WEEKLY SCHEDULE:

WEEK 1	I will write the code of the menu I want to do in the first week
WEEK 2	I will add different animation codes for RGB LEDs.
WEEK 3	I will add motion sensors to the circuit and code which leds the sensors will turn on.
WEEK 4	I'll add speakers to the circuit and write the code for it.
WEEK 5	I will add the light sensor to the circuit and the settings in the menu.
WEEK 6	I'll make the final edits of the code, as well as add a few visuals for the opening and closing.

FUTURE WORKS:

If my project ends earlier than my target time, I will try to simplify the code and the circuit to reduce the problem of the Proteus in the previous project.