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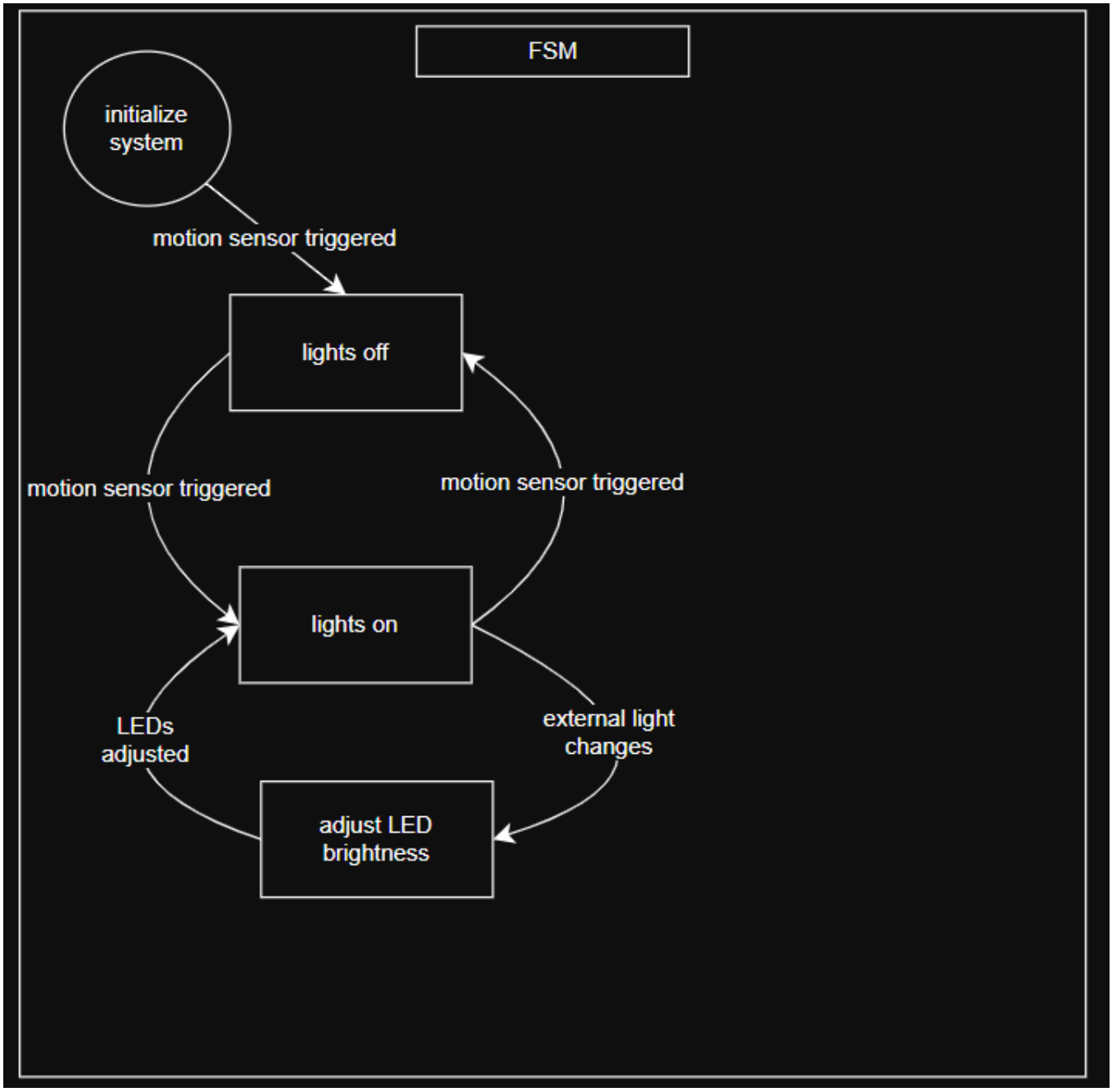
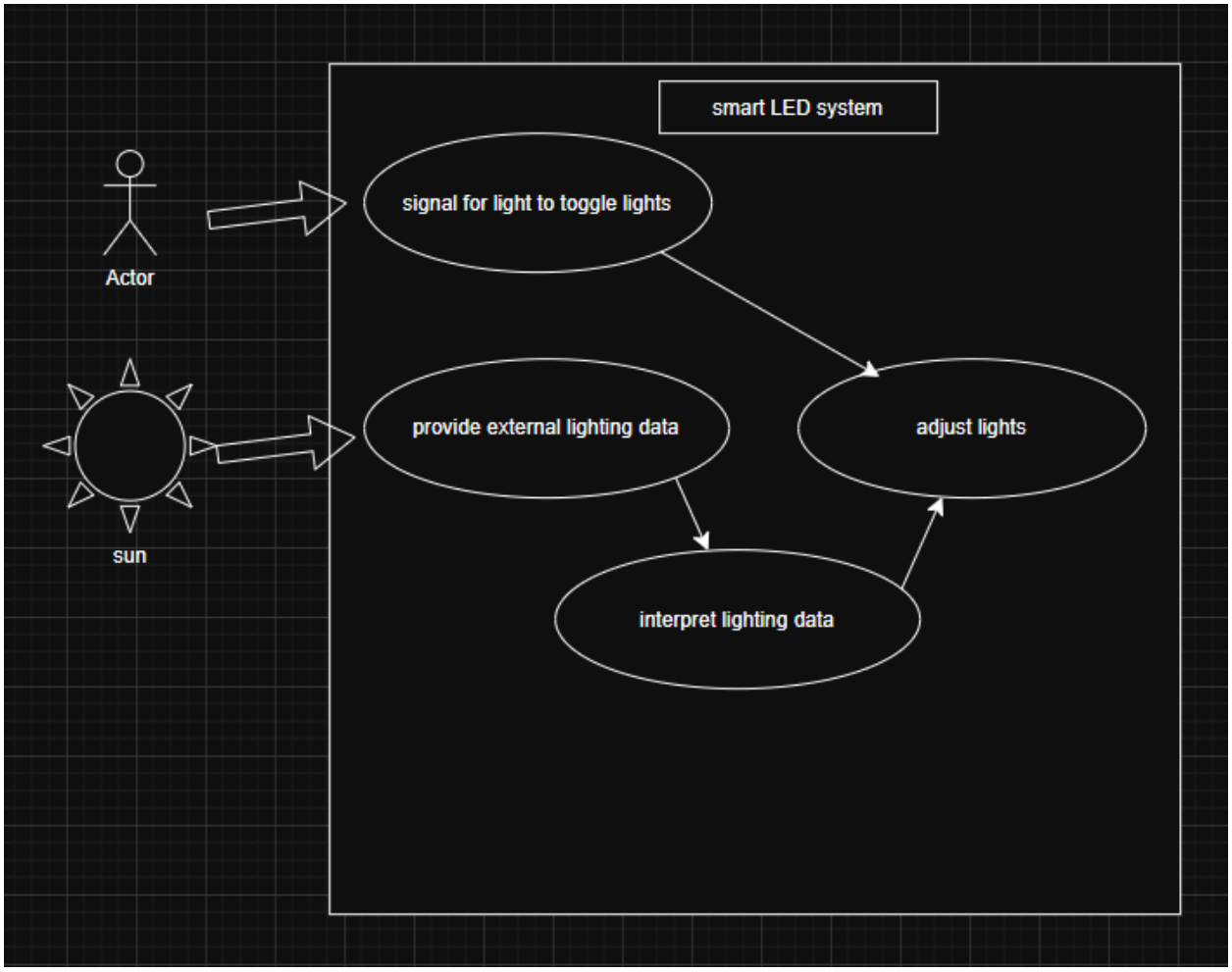
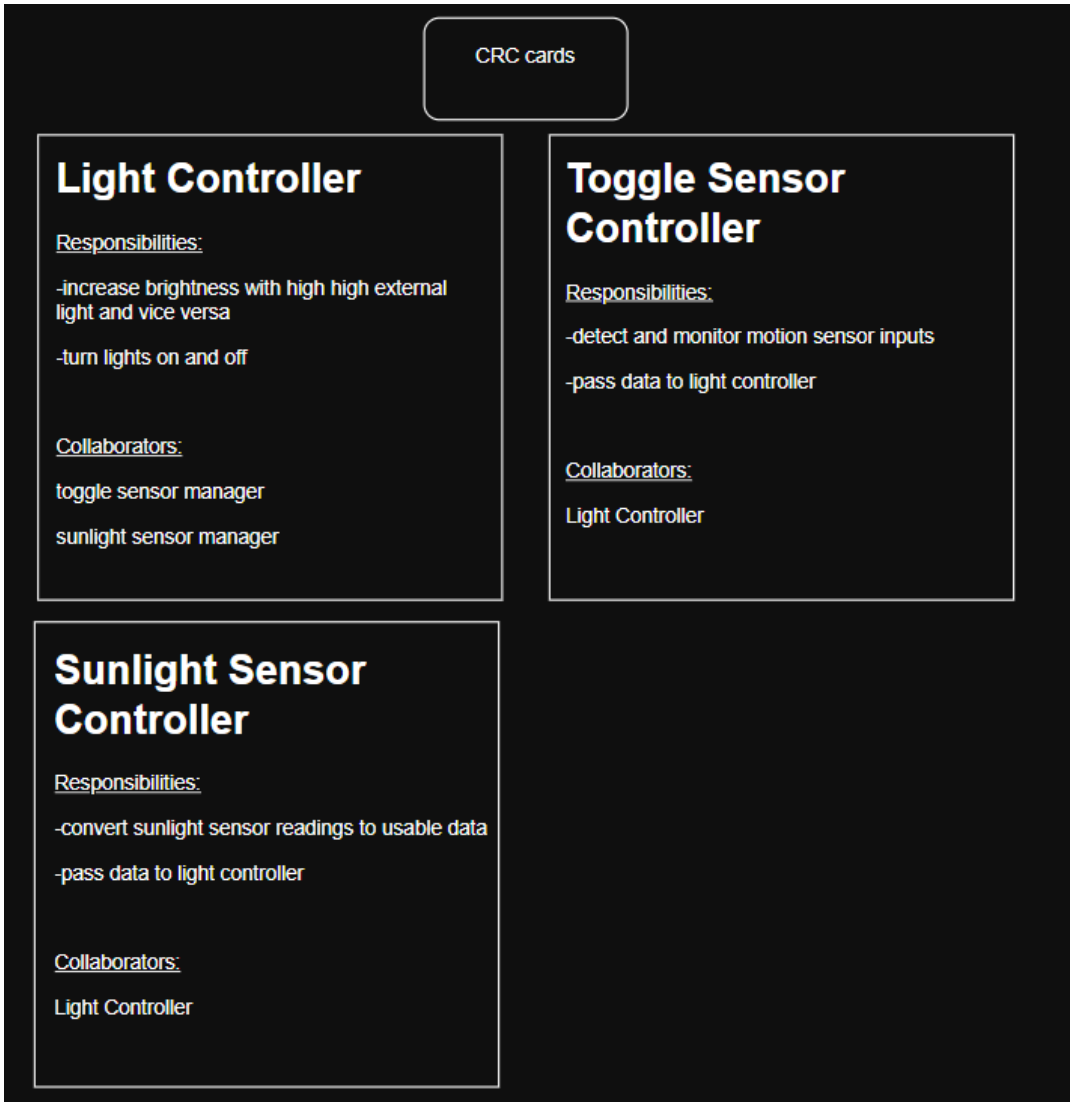
Problem Title and Statement:

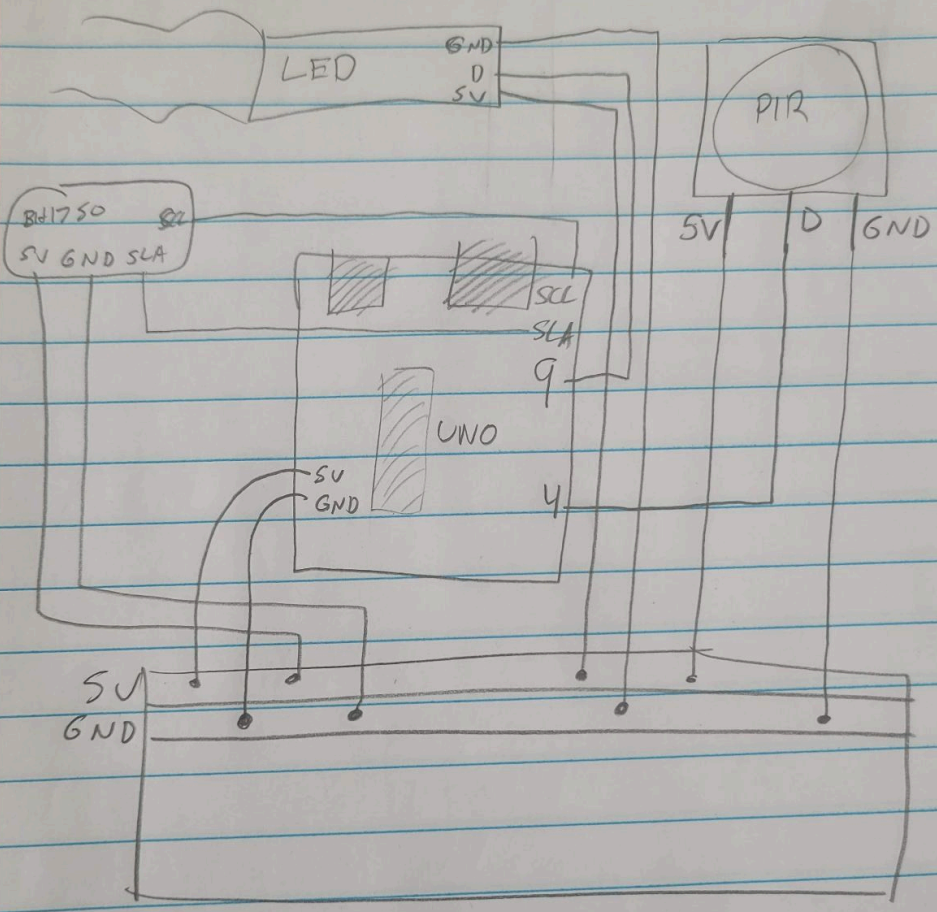
Our project will be called the Adaptive LED Strip. The purpose of this project is to create an LED controller that automatically turns on/off lights, with automatically controlled brightness based on ambient light. The light toggle will be triggered using a PIR infrared sensor with a range of 3m, for long range use. The brightness will be controlled by a daylight sensor placed in the room, reading the ambient brightness of the space. When the room is dark, the lights will increase in brightness, and the opposite when the room is bright.The LED will be powered by a wall adapter, which will also be used to power the arduino, allowing the device to work while disconnected from a computer.


FSM
initialize system
motion sensor triggered
lights off
motion sensor triggered
motion sensor triggered
lights on
LEDs adjusted
external light changes
adjust LED brightness


smart LED system
Actor
signal for light to toggle lights
sun
provide external lighting data
adjust lights
interpret lighting data



Component	Specific item
Arduino board	1x Arduino R4 minima
LED strip	1x 16.4 ft WS281B LED strip
Power supply	1x 5V power supply
Light sensor	1x adafruit bh1750 ambient light sensor
Motion sensor	1x grove PIR sensor (2x if adding color toggle)
Breadboard and wires	Recommendations: Stemma qt connector for bh1750 Male to Female connectors for sensors


LED
GND
D
5V
PIR
5V
D
GND
Bdl750
SCL
5V GND SCA
SCL
SCA
9
UNO
5V
GND
4
5V
GND