



Department of Electrical and Computer Engineering
Second Semester 2020/2021
ENCS4110-Computer Design Lab
Deadline: Friday 07/05/2021

SMART HOME AUTOMATION PROJECT

Use Tinkercad or any other tool to implement the following project

You have two Arduinos which are connected using serial cable

Arduino#1 is connected to the following components:

- 1-Ultrasound Sensor to measure distance, if there is something in distance of 50 cm or less, a door (Servo motor) will open for 3 seconds. After the 3 seconds it will check again if something is still within 50 cm distance and if yes it will continue opening for another 3 seconds, if no then it will close (and so on).
- 2- Light Dependent Resistor - LDR (to detect Light) and Passive Infrared sensor - PIR (to detect movement). If there is no enough light “and” there is a movement then a bulb will be turned on for 1 minute (and so on).
- 3- Temperature Sensor to measure temperature, if the temperature is more than 30 degree, then a fan (DC Motor) will be turned on, and the fan will go faster as the temperature increases.

Arduino#2 is connected to the following components:

- 1- Switch : the switch will control if the system works in Automatic mode or manual mode. If in automatic mode then all work will be done automatically by Arduino#1. If in Manual Mode, then Arduino#2 will receive different alarms about the situation of Arduino#1, and use remote control to turn on/off the bulb, the door (servo motor), and the fan (DC motor).
- 2- LEDS and Buzzers to notify the user if anything needs an action (in case of Manual Mode).
- 3- Remote Control: to control all the actions (in case of Manual Mode).

Write a report that include:

- 1- Abstract
- 2- Brief background about the components and their usage.
- 3- Design and implementation (include at least part of the code)
- 4- Testing (include screenshots)
- 5- Conclusion
- 6- References
- 7- Appendix (you can include here the entire code)

Important: Each screenshot should include the date and time of your computer.

Important: Include comments inside the code as much as possible.

😊 Good Luck 😊