

EE380 Summer 2018

Electronics

Halloween Spook

Without the use of a micro controller design a system that can:

1. Detect a person
2. Wait a configurable amount of time (in seconds).
3. Turn on a 110 V outlet. (You may plug in a lamp for testing)
4. Wait a configurable amount of time (in seconds) and turn back off.
5. The sensor should then wait a configurable amount of time (in seconds) before the sensor can be retriggered.

Your Design should use an Ultra Sonic range sensor to detect the person, talk to Jeff or Mr. Randall. On and off times should be “programmable” via a potentiometer for each. You must include a complete design schematic for the project in your documentation. Extra point consideration will be given for packaging, but is not necessary for the completion of the project.

Submit: Hardware schematic, Notebook, calculations, and documentation. Your documentation should include a verification sheet signed and dated by Mark Randall, or Dr. Mitchell.

Design schematic for the project in your documentation. Extra point consideration will be given for packaging, but is not necessary for the completion of the project.

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Signal Conditioning

Design a signal conditioning circuit that will use an lm335 temperature sensor

(<http://www.ti.com/lit/ds/symlink/lm235a.pdf>)

as the input. The conditioning circuit should condition the signal so that the output of the circuit should range for 0-3.3v and this range should correspond to the temperatures from 0-100 degrees C.

Once you have conditioned the signal come up with a perform an experiment that can be used to verify your project. Collected and present data to show that the project performs as designed.

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Design schematic for the project in your documentation. Extra point consideration will be given for packaging, but is not necessary for the completion of the project.

Submit: Hardware schematic, Notebook, calculations, and documentation. Your documentation should include a verification sheet signed and dated by Mark Randall, or Dr. Mitchell