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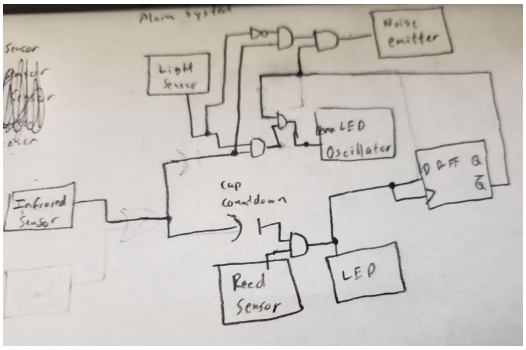
Formal Project Proposal

Intro and Problem Statement

For our ECE 110 Final Project, we are designing and implementing an alarm system similar to what would be used in a house to ward off burglars. This system would be able to detect the presence of an intruder and alert anyone nearby of the intruder.

Proposed Solution Concept & Solution Outline

The alarm system would use a multitude of sensors as well as an internal logic to determine the type of output that is emitted. Initially triggered by an infrared sensor, a capacitor is triggered to start charging and discharging. During the timer period where the capacitor is discharging, if a reed sensor is triggered due to a magnetic field in its proximity, current will flow through to a flip flop which will act as a disarm feature preventing either output of the alarm from triggering. However, if the alarm is not disarmed by the time the capacitor is finished discharging, the alarm will then trigger either a flashing LED if the daylight sensor detects dim light (nighttime) or a noise emitter under bright light (daytime). The logic for the system is shown in the below diagram.



Necessary Components

- Speaker
- Daylight Sensor
- Infrared Sensor & Emitter
- Reed Sensor
- LED’s
- Capacitors
- 1 D-Flip Flop Chip
- 2 2-AND chips
- 1 Hex Inverter Chip

Schedules and Milestones

1. Design the circuit layout - By start of weekend openlab 4/13
2. Finish assembling the Circuit - By end of lab 12
3. Finalize circuit - By end of weekend openlab 4/20