

1. Project title: Smart Light



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2. Abstract

System to activate and automated control of a home facility (eg. light, heat, etc) based of some information that can be acquired (eg. human presence, light intensity, temperature, etc.)

3. Introduction, project aims and objectives

Project propose to replace the manual light switch with an automatic one. This process of light opening will be automatized making use of 2 sensors to measures: light intensity in room and detecting the presence of a person in room. On each values is applied a threshold and if the value touching that threshold on both of them, the light will open automatically.

4. System overview

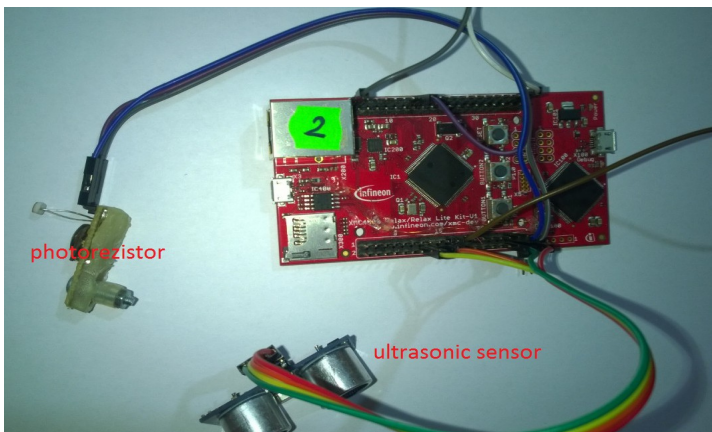
This project can be divided in 5 modules:

- The XMC module
- The photoresistor module
- Ultrasonic module
- Module that separate 5V DC from 220V AC

5. Schematics and components

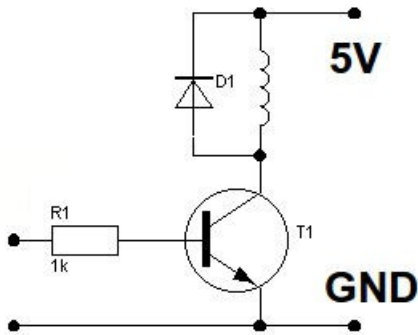
The main 2 module are described below:

1. XMC4500 relax kit

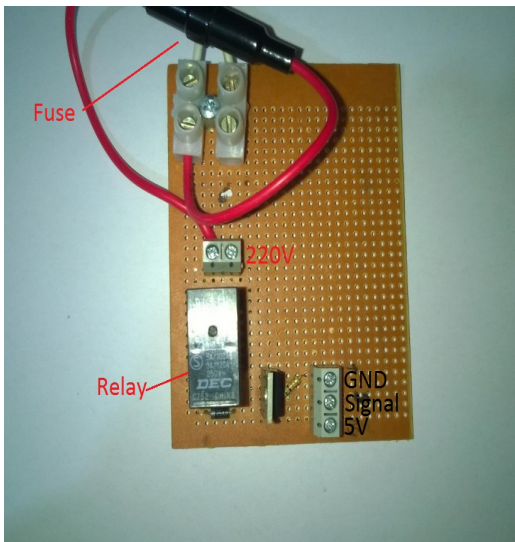


2. Board with relay

The schema of the board.

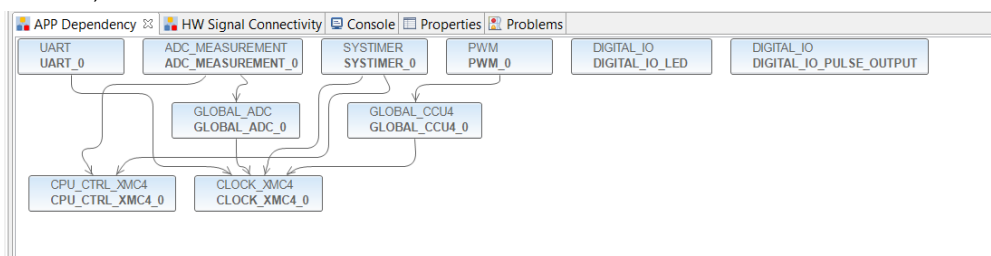


The implementation is presented below.



6. Software

I used DAVE 4. In the figure below you can see the app that I make use. ADC_MEASUREMENT is for photoresistor. PWM and DIGITAL_IO_PULSE_OUTPUT is for sonar. DIGITAL_IO_LED is used to open the transistor (close the relay to open the light at 220V AC)



7. Project results & applications

The light is opened when the sensor is blocked to receive light and a moving object is in the front of the sensor.

8. Reference

1. www.embedac.ro
2. Dave 4 help document