Solar Energy Driven LED Security System

Questionnaire

Overall Project:

a. Why?
    - Implementation of a power saving security system that collects solar energy during the daytime to power lighting fixtures during the nighttime and to function as a spotlight when motion is detected
b. What exists; how done?
    - Solar power is an increasing industry nowadays and is much more energy efficient. Along with that, security/spotlight systems most definitely exist currently but the difference here is that each lighting fixture contains its own solar collector to collect energy during the day for power throughout the night. The solar collectors are not present to collect overall power, only for individual fixtures and to tie in its own security aspect.
c. What your project brings
    - Although solar installation is more expensive, the energy saving aspect is crucial for a strictly outdoor lighting system.

Processor:

a. Why?
    - The Dragon Board microprocessor will be used due to collaboration efforts and also has the ability to control numerous systems within the system itself.
b. External components vs. internal capabilities
    - The Dragon Board has the capability of operating each individual led fixture by itself but will be controlling them in a group fashion. External components will consist of a series of LED fixtures, miniature solar collectors, and active infrared sensors
c. Speed cushion/improvement possibilities—project life cycle
    - After researching the difference between active and passive infrared sensors, parts can be chosen and the link of solar collection to LEDs can be started.
d. Cost consideration
    - Some parts are available but cost consideration is not too extreme due to low pricing and low amount

Hardware:

a. Availability
    - As said above, some parts are available but solar collectors, solar capable LEDs, and active sensors may need to be purchased.
b. Reliability
    - This project is new and will be created from scratch. There is a plethora of information regarding solar and sensors so research here will be crucial.
c. Speed cushion/improvement possibilities—project life cycle
    - Early stages of this project will consist of basic solar collection to power LEDs during the nighttime. Later stages will consist of implementing the sensors to detect movement and act as security beacons.