



**Studio.**

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## **Solar Panel Cubic Charger Written Progress Report**

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## Overview

Throughout the three months of design and implementation, OMG Studio had been positive and continues to stride for the best outcome of this product.

The final step for completion is to combine all the functioning components together. Once all the components are combined, we will be able to conduct tests to ensure that all units function accordingly. Different stage requirements has been fulfilled and working to be improved.

## Requirement Analysis

In our functional specification document, we have described that this product has been designed to improve the efficiency of solar panel chargers. This particular product will eliminate the need for power source such as power outlets.

## Technical Development

### Temperature Display Unit:

We are happy to announce that the temperature display unit is working accordingly. It will sense the current temperature, passing the data to the microcontroller, then displaying onto the 7-segment LED. The only difficulty we are having is the conversion between the use of DS1820 and DS18B20. Since the DS18B20 works with 12-bit temperature value instead of the 9-bit value that DS1820 works with, changes on our current code has to be made in order for the 7-segment LED to display the proper value.

### Switch Unit:

After several discussion and trials, we have successfully implemented a switch that will be used to control our solar panel setup in order to fulfill the charging requirement. Changing the switch from one to another will cause the solar panels to either be connected in parallel or series, allowing us to charge the built-in battery with very limited source of light.

### LED Unit

This is our most successful part of the project. By controlling the value of resistors and diodes, we managed constructed a circuitry that controls the value for the LED to be lit. Even though we specified two locations for our LEDs to light up for separate occasions, the same circuitry were used.



## Written Progress Report for Solar Panel Cubic Charger

LED lit when: button pressed & non-sufficient light source: Check

LED lit when: button pressed & built-in battery is low on energy: Check

### Charging Unit:

Charging our mobile device within a reasonable amount of time is our ultimate goal of the project. Our current device charges our mobile phones but further improvements will be made for greater efficiency before the demonstration date.

## **Budget**

Our current expenditure is around \$154. The cost has been reduced by purchasing cheap but functional components. In order for us to improve our product, extra funds will be required. Cosmetic cost has not yet been accounted. For the product to be presented professionally, paint and other supplies will be purchased after the device is fully functional.

## **Team Dynamics**

Members of OMG Studio have been working together as a whole during the entire development process of this product. Cooperation and contribution from the group will be rewarded once the device is fully functioning. There are frequent daily group meets in order to keep the group updated and on track. Exchanging and discussing new ideas allowed the product to become more solid.

## **Action Items**

The remaining task to overcome is combining all the functional components together as a whole. To conclude the development of the charger, we will perform tests to ensure that every requirement listed on previous documents is satisfied. The expected completion date is December 12, 2011.



### Gantt Chart

