Title

FPGA-Based Design and Implementation of a Controller for a Dual-Axis SunTracking System

Problem Statement

Two major factors affect the efficiency of solar panels: the PV cell efficiency, and the intensity of sun rays received on the surface of the panel. Increasing the size of solar panel is the trivial solution to increase its efficiency, however, this is a costly solution. This project will try to increase the efficiency of solar panels by developing an efficient and cost effective sun tracking system. The sun tracking system will try to keep the intensity of the sun rays hitting the solar pane as high as possible, which will increase its efficiency.

Outcome

Efficiently working sun tracking system that will reduce the size needed for the solar panels used on Rawabi United gas detection systems.

Requirements (Tentative)

- FPGA based solution.
- Higher efficiency and lower cost than traditional solutions.
- Increases a solar panel's electricity production at least by an average of 20%

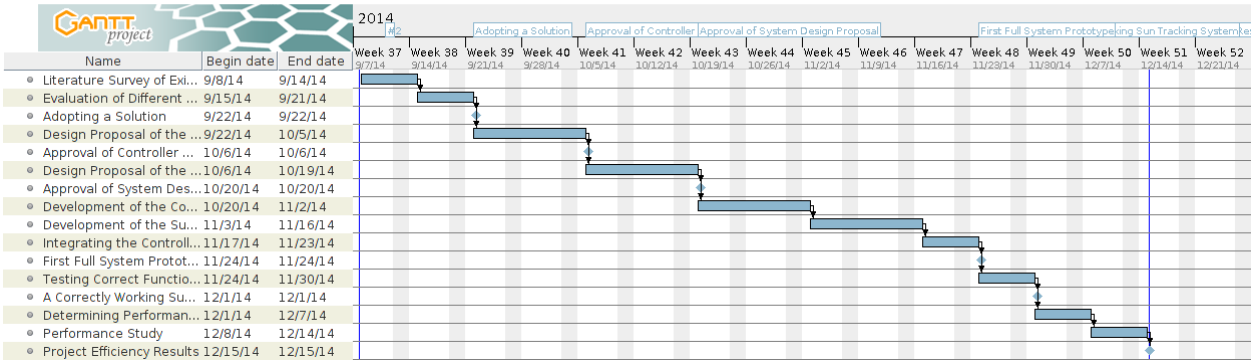
Advisor

Dr. Aiman El-Maleh

Team

- Member 1: Murtadha Al-Saeedi, 200990530.
- Member 2: To be decided.

Timetable (Tentative, Sub-tasks will be added)



Sun Flower (Sun Tracking System Project)

Sep 9, 2014

http://

Project manager	Murtadha
Project dates	Sep 8, 2014 - Dec 15, 2014
Completion	0%
Tasks	16
Resources	1

Tasks

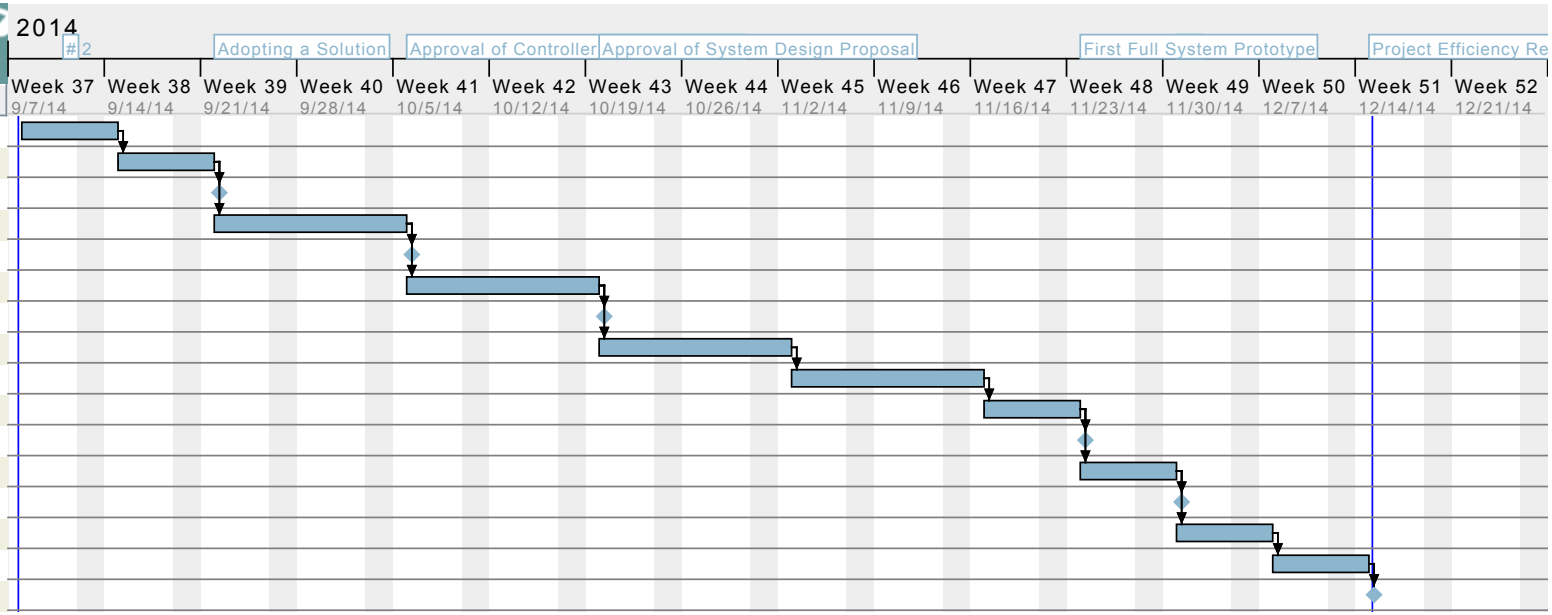
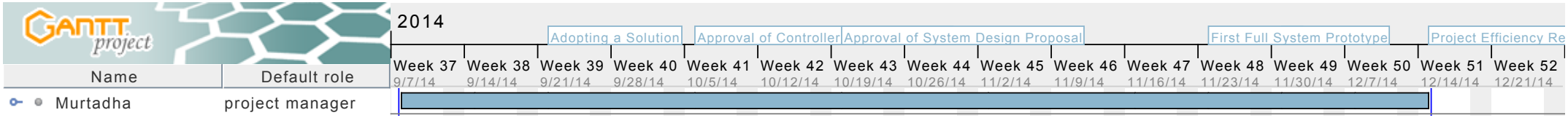
Name	Begin date	End date
Literature Survey of Existing Solutions	9/8/14	9/14/14
Evaluation of Different Solutions	9/15/14	9/21/14
Adopting a Solution	9/22/14	9/22/14
Design Proposal of the Sun Tracking Controller	9/22/14	10/5/14
Approval of Controller Design Proposal	10/6/14	10/6/14
Design Proposal of the Sun Tracking System	10/6/14	10/19/14
Approval of System Design Proposal	10/20/14	10/20/14
Development of the Controller	10/20/14	11/2/14
Development of the Sun Tracking System	11/3/14	11/16/14
Integrating the Controller and the System	11/17/14	11/23/14
First Full System Prototype	11/24/14	11/24/14
Testing Correct Functionality of the System	11/24/14	11/30/14
A Correctly Working Sun Tracking System	12/1/14	12/1/14
Determining Performance Measures	12/1/14	12/7/14
Performance Study	12/8/14	12/14/14
Project Efficiency Results	12/15/14	12/15/14

Resources

Name	Default role
Murtadha	project manager

Gantt Chart

Name	Begin date	End date
Literature Survey of Exis...	9/8/14	9/14/14
Evaluation of Different S...	9/15/14	9/21/14
Adopting a Solution	9/22/14	9/22/14
Design Proposal of the S...	9/22/14	10/5/14
Approval of Controller D...	10/6/14	10/6/14
Design Proposal of the S...	10/6/14	10/19/14
Approval of System Desi...	10/20/14	10/20/14
Development of the Con...	10/20/14	11/2/14
Development of the Sun...	11/3/14	11/16/14
Integrating the Controll...	11/17/14	11/23/14
First Full System Prototy...	11/24/14	11/24/14
Testing Correct Functio...	11/24/14	11/30/14
A Correctly Working Sun...	12/1/14	12/1/14
Determining Performanc...	12/1/14	12/7/14
Performance Study	12/8/14	12/14/14
Project Efficiency Results	12/15/14	12/15/14



Resources Chart