FINAL YEAR PROJECT REPORT

DUAL AXIS SOLAR TRACKER

A PROJECT REPORT

Submitted by

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In partial fulfillment of the requirements for the award of degree

Of

BACHELOR OF SCIENCE

IN

ELECTRICAL ENGINEERING

APPROVED BY

Project Advisor _____ Director Projects _____

DEPARTMENT OF ELECTRICAL ENGINEERING

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UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

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University of Management & Technology
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Department of Electrical Engineering

Senior Year Project- I Evaluation

Project ID 50 Date 20/03/2014

Project Title: Solar Panel Tracking (Dual Axis).

Particulars of the Students

Code	ID	Name	Semester in which Registered	Contact Number
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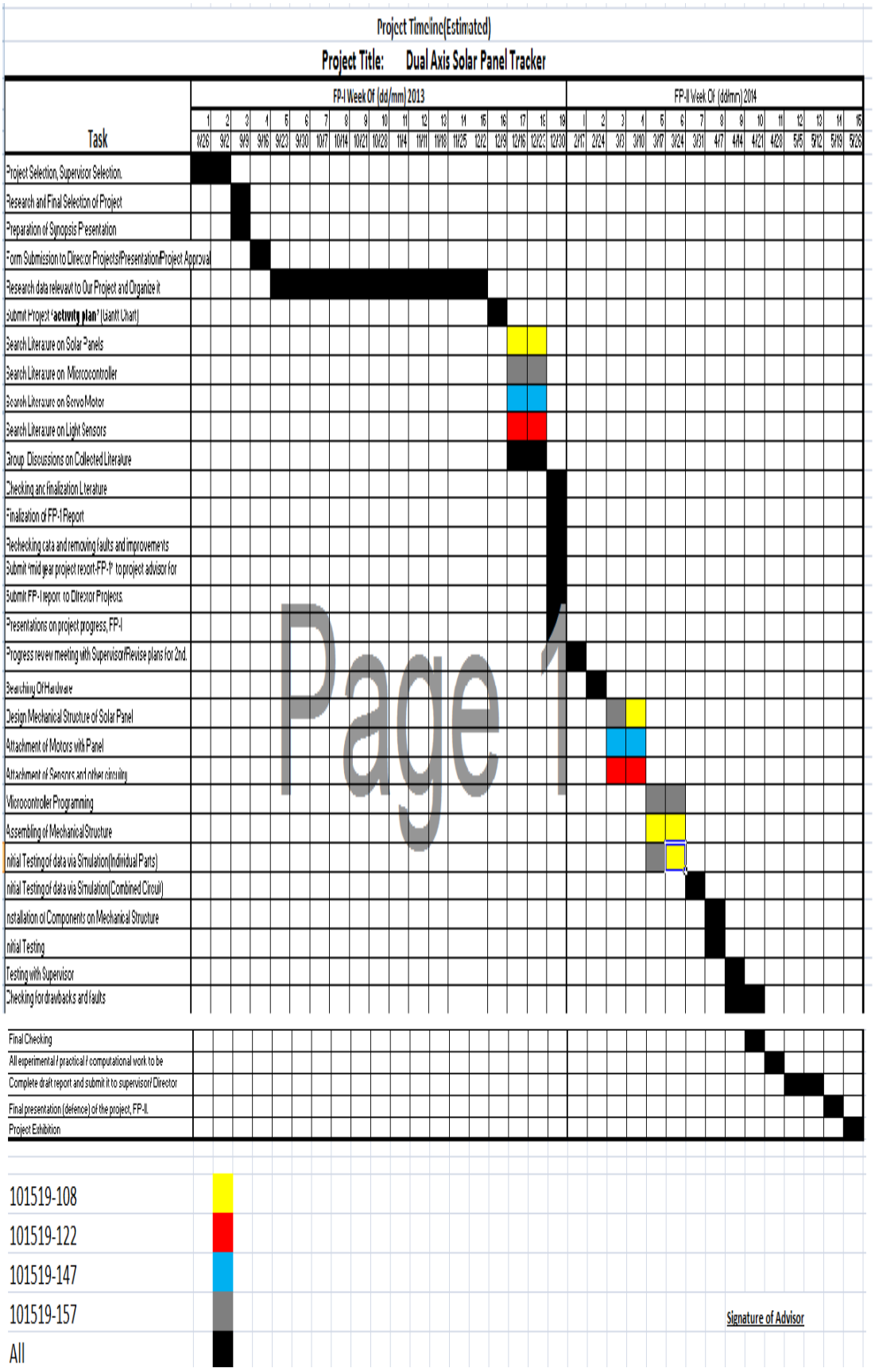
S.No	Topic	Max Marks	Obtained Marks
1	Problem Statement	10	
2	Objective/Scope	10	
3	Methodology	10	
4	Scope of the Project/Utilization	10	
5	Literature Review/Data collection	10	
6	Design and Analysis	10	
7	Expected Output/Outcome/Final Deliverable	10	
8	Conclusion and Recommendation	10	
9	FYP-1 Documentation	20	

$\frac{17.5}{30} \times 11.66$

Suggested Changes

1. 8 Panel Tracking System both axis.
2. Only Frame & tracking mechanism to be demonstrated. Solar Panel available in the lab may be used.
3. The Mechanism must cater for the total weight of Panels & frames

Name Role: (adviser/member) Signature:


Project Timeline(Estimated)
Project Title: Dual Axis Solar Panel Tracker
Task
FP-I Week Of (dd/mm) 2013
FP-II Week Of (dd/mm) 2014
Project Selection, Supervisor Selection.
Research and Final Selection of Project
Preparation of Synopsis Presentation
Form Submission to Director Projects/Presentation/Project Approval
Research data relevant to Our Project and Organize it
Submit Project 'activity plan' (Gantt Chart)
Search Literature on Solar Panels
Search Literature on Microcontroller
Search Literature on Servo Motor
Search Literature on Light Sensors
Group Discussions on Collected Literature
Checking and finalization Literature
Finalization of FP-I Report
Rechecking data and removing faults and improvements
Submit 'mid year project report-FP-I' to project advisor for
Submit FP-I report to Director Projects
Presentations on project progress, FP-I
Progress review meeting with Supervisor/Revise plans for 2nd.
Searching Of Hardware
Design Mechanical Structure of Solar Panel
Attachment of Motors with Panel
Attachment of Sensors and other circuitry
Microcontroller Programming
Assembling of Mechanical Structure
Initial Testing of data via Simulation(Individual Parts)
Initial Testing of data via Simulation(Combined Circuit)
Installation of Components on Mechanical Structure
Initial Testing
Testing with Supervisor
Checking for drawbacks and faults
Final Checking
All experimental / practical / computational work to be
Complete draft report and submit it to supervisor/ Director
Final presentation (defence) of the project, FP-II.
Project Exhibition
101519-108
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101519-157
All
Signature of Advisor

Originality Statement

We hereby declare that this submission is our own work. To the best of our knowledge it includes no materials formerly published or written by another person or considerable proportions of material which have been accepted for the award of any other degree or any other educational institution apart from where due acknowledgement is made in the report. Any input made to the research by others with whom I have worked at University of Management and Technology or elsewhere, is explicitly acknowledged in the report. We also declare that the rational content of this report is the product of our own work except to the extents that help from others in the project design and beginning or in style, presentation and linguistic expression is acknowledged.

Group Mates Signature

Signature _____

Signature _____

Signature _____

Signature _____

Advisor Signature

_____

Date _____

Dedication

We dedicate my thesis work to my family and many friends. A special sentiment of thankfulness to our loving parents, their words of encouragement and push ring in my ears. We will always appreciate all they have done for helping us develop my technology skill.

We dedicate this work and give special thanks to our adviser and co-adviser for being there with us throughout the entire work. Both of them have been our driving force to reach to milestone which we never thought would accomplish without their kind help.

Acknowledgement

We would like to bend over our head before ALLAH Almighty the most Gracious and the most kindhearted. He has been our actual supporter throughout our lives. We are enormously thankful to our families for their never ending support and encouragement, for spending their time, their resources for us and for providing us with a very comfortable and progressive work environment. Moreover we would like to thank our friends and staff who gave us the knowledge of our subjects which led us to achieve this goal of a great final year project that gave us extreme learning and experience of field work.

We want to thank our project advisor, **Jameel Ahmad** who gave us the enthusiasm for this project. He was extremely kind and supportive throughout the completion of our project. We consider ourselves extremely fortunate for having the opportunity to learn and work under his supervision over the entire period. After that, we would like to take this opportunity to express our gratitude and sincere thanks to **Maryam Ali** for her valuable support.

Abstract

Solar energy is rapidly becoming important mean of renewable energy resources. As such it is very important that those in engineering fields understand the technologies associated with this area. Our project included the design and construction of a microcontroller-based solar panel tracking system. Using solar tracking we can produce more energy because the solar array is able to remain united to the sun. This system builds upon topics learned in this course. Our work will ultimately be demonstrated to validate the design. Problems and possible improvements will also be presented.

In our project we designed 8 panels, solar tracker. Designed device is capable to rotate the panel in position of sun. MPPT (maximum power point tracker) is the technique that we used. 4 LDR's (light dependent resistor) are used for input. These inputs are provided to LM324 a comparator IC (integrated circuit) which sends the high level input to the controller for decision.

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