FINAL YEAR PROJECT REPORT

# MAXIMUM POWER POINT TRACKING BASED SOLAR BATTERY CHARGING REGULATOR

A PROJECT REPORT

*Submitted by*

Muhammad Khayyam Sharif

Arsalan Shokat

Hafiz Shah Abdullah

Hassan Talal

*In partial fulfillment of the requirements for the award of degree of*

BACHELOR OF SCIENCE

IN

ELECTRICAL ENGINEERING

APPROVED

Project Advisor: _____ Director Projects: _____

DEPARTMENT OF ELECTRICAL ENGINEERING

SCHOOL OF ENGINEERING

UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

November 2014

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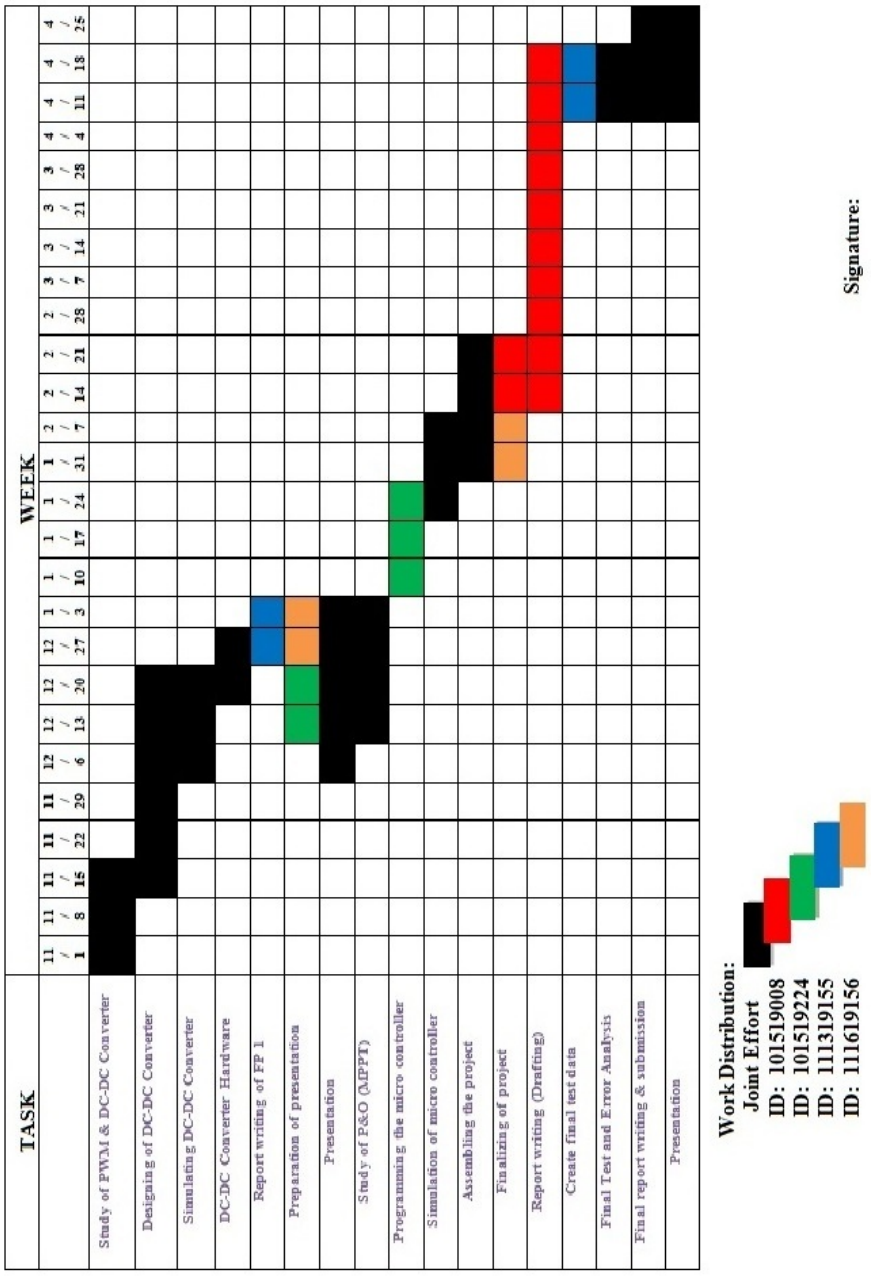
# Estimated Project Timeline



# DECLARATION

We hereby declare officially that our project work entitled, "**Maximum Power Point Tracking Based Solar Battery Charging Regulator**", submitted to the "Department Of Electrical Engineering" under School Of Engineering at University Of Management And Technology, is a record and written evidence of our work performance under the guidance of Mr. Nauman Ahmad (Lecturer at EE Department). This document along with its project work is submitted in the partial fulfillment of the requirements of the award of the degree of *Bachelor Of Science in Electrical Engineering*. The results embedded in this document and performance done is not done or submitted to any other University or Institute for the award of any degree or diploma.

Muhammad Khayyam Signature: _____

Arsalan Shokat Signature: _____

Hafiz Abdullah Signature: _____

Hassan Talal Signature: _____

# ACKNOWLEDGMENT

With the help of ALLAH ALMIGHTY, we all are able to complete our project. We would like to pay gratitude to ALLAH and then thanks to our parents for putting up their confidence in us and getting us here. We would like to express our deepest appreciation to all of the people who have helped us to complete our task. A special thanks to our Sir Nauman Ahmad, whose guidance was a role model for us and added to our skills and co-ordination.

Furthermore, we would like acknowledge with much appreciation the role of our Institute whose name brings us together to complete this difficult task of "Maximum Power Point Tracking Based Solar Battery Charge Regulator". Lastly we really appreciate the efforts of other staff members and teachers who have helped us in our presentation and tend us to develop a successful project. Their advices will really lead us to the road of success.

Thank you

# ABSTRACT

This thesis gives the whole idea and theme of the "*M.P.P.T Battery Charger for P.V Panels*" to the reader. Solar power is becoming most important form of power technology that will hopefully lead us away from depending on exhaustible energy sources. We explained how exactly we can use the simple yet effective controller for the solar panel in order to track the maximum power. We also provided the modeling techniques used for its development and application. Being a Maximum Power Point Tracker (MPPT), we could follow various MPPT algorithms and control methods but we have used Perturb & Observe method which best suits for simple implementation. *PROTEUS* and *MATLAB Simulink* are used for the simulation which is a helping hand in hardware implementation. Complete designing procedure and hardware implementation is explained in the report for better understanding the operation of *charge controller*. The results and verifications done in the report explain the validation of the project made. Hence, the report explains the overall design, modeling and implementation of a *MPPT Charge Controller* to enhance the efficiency of solar panel and to utilize the solar power in the best way we can.

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