

SRES's
SANJIVANI COLLEGE OF ENGINEERING,
KOPARGAON 423 603 (M.S.)



Department of
Electronics & Telecommunication Engineering
2018-2019

PROJECT [STAGE-I] REPORT
ON

(DIGITIZATION OF BATTERY MANAGEMENT
SYSTEM & CHARGING BY SOLAR PANEL)

CERTIFICATE

This is to certify that this report on project [Stage-I] entitled,

**“(DIGITIZATION OF BATTERY MANAGEMENT SYSTEM & CHARGING BY
SOLAR PANEL)”**

Submitted by,

1. B150123139.
2. B150123146.
3. B150123140.

For the partial fulfillment of the requirements of Bachelor of Engineering (Electronics & Telecommunication Engineering) degree of the Savitribai Phule Pune University, Pune embodies the work done by them under our guidance and supervision in the academic year 2018-2019.

(Prof. D.G. Lokhande)
Guide

(Prof. D. G. Lokhande)
Coordinator

(Dr. B. S. Agarkar)
Head of Dept.

(Dr. D. N. Kyatanavar)
Principal

External Sign.:_____

ACKNOWLEDGEMENT

“DIGITIZATION OF BATTERY MANAGEMENT SYSTEM & CHARGING BY SOLAR PANEL” has been the opportunity to express ourselves technically. This has proven to be a stepping stone which will be of immense help to us as we enter market. We want to express our gratitude to everyone who helped us by giving moral support and by solving our difficulties. Everyone has contributed immensely and helped us for the same unto the completion of project.

We take this opportunity to express our deep sense of gratitude towards head of department of Electronics & Telecommunication Engineering **Dr. B. S. Agarkar** and we are highly grateful to our esteemed guide and project coordinator **Prof. D. G. Lokhande** for his expert guidance during preparation of this seminar. He has received us whenever we required his help. In true sense of word we are grateful to him. Also we are thankful to him for extending all the facilities in completing this seminar.

We would like to place our sincere thanks to all staff members of Electronics & Telecommunication Department who have helped us directly or indirectly for our seminar preparation and all our friends, who helped us and initiated discussion during the seminar. Last but not least; we want to acknowledge our beloved parents, who have taken great pains for our education.

1. Maniyar Akib Mansur.
2. Sheikh Masem Mandal.
3. Muley Rasika Rajesh.

CONTENTS

	Page
Abstract	iii
List of Tables	iv
List of Figures	iv
 CHAPTER 1 INTRODUCTION	
1.1 Introduction	1
 CHAPTER 2 OVERVIEW OF LITERATURE	
2.1 Introduction	4
2.1.1 Books	4
2.1.2 Journal Papers	5
2.2 Need for Present study	7
2.3 Proposed Approach	7
2.4 Objectives and Scope	7
2.5 Scope	8
 CHAPTER 3 PROJECT DEFINITION AND SPECIFICATIONS	
3.1 Project Definition	9
3.2 Specifications	9
3.3.1 System Specifications	9
3.3.2 Input and Output Specifications	9
3.3.3 Hardware Specifications	10
3.3.4 Software Specifications	13
 CHAPTER 4 METHODOLOGY	
4.1 Block diagram explanation	14
4.1.1 Internal block Diagram	15
4.2 Block Diagram Explanation	
4.2.1 Solar Panel	15
4.2.2 Solar charge controller	16
4.2.3 Battery Management System (BMS)	16
4.2.4 Fuses	17
4.2.5 Node MCU ESP8266	17
4.2.4 System (PC)	17
4.3 Design Stages	
4.3.1 Circuit Diagram	18
4.4 Software Design	
4.3.3 Flow Chart	19
 CHAPTER 5 CONCLUSIONS	

6.1 Advantages	20
6.2 Applications	20
6.3 Conclusions	20

CHAPTER 6 PROPOSED TIME PLAN OF ACITIVITIES	21
--	-----------

References	22
-------------------	-----------

ABSTRACT

In this paper, we give a study of the Battery Management System and Solar Charging system. This technology is growing rapidly due to growing market of Energy Storage System, Hybrid Electric Vehicle, Solar Electric Vehicle, Grid Energy Systems and many consumer application running on battery.

The existing system for battery management and solar charging is just do it assigned work but the consumer doesn't know the working behavior of the system. That's why there is the need to digitize these system for better understanding, analysis and controlling the working of the system.

This paper gives you an introduction about the principle and working of the battery management and solar charging system. It also gives an introduction about the way of digitization of the system. The digitized battery management and solar charge system provides the consumer, a real-time working behavior of the system for various parameters. This digitized data helps a lot to the consumer about deciding the future strategy of the system by analyzing it.

LIST OF TABLES

Table No.	Title	Page No.
6.1	Proposed Time Plan & Activity	21

LIST OF FIGURES

Figure No.	Title	Page No.
1.1	Basic Structure of BMS System	2
2.1	Battery System Engg. Book.	4
2.2	Solar Energy Engg. Book.	5
3.1	BMS	10
3.2	Solar Panel.	11
3.3	Solar Charge Controller.	12
3.4	Node MCU ESP8266EX	13
4.1	Block Diagram.	14
4.2	BMS Internal Block Diagram	15
4.3	BMS Circuit Diagram	18
4.4	Flowchart	19