

FINAL YEAR PROJECT REPORT

POWER MONITORING & MANAGEMENT SYSTEM (PMMS)

In fulfillment of the requirement For degree of BEE (Electronics)

By

21010 DEECELECTDONICS

MUNAMINAD MANIJ	STOTO DEE(EEECTROMES)
MUHAMMAD ADIL SHAIKH	31002 BEE(ELECTRONICS)
NOMAN ALI	31022 BEE(ELECTRONICS)
ZUNAIRA GHAFOOR	31061 BEE(ELECTRONICS)
ZUNAINA UIIAI UUN	31001 DED(LEEGINGING

SUPERVISED

BY

ENGR. FARAZ HUMAYOUN

BAHRIA UNIVERSITY (KARACHI CAMPUS) 2012-2016

ACKNOWLEDGEMENTS

We are greatly thankful to Almighty ALLAH, for giving us the strength and potential to complete this project successfully. We are greatly thankful to our HOD, Dr. Harron-ur-Rasheed for his compliance and support for the project. We would like to thank Mr. Muhammad Asim, Maaz Usmani and Afroz Shabbir for their helpful hand and guidance throughout the project, we would thank everyone who had contributed to the successful completion of this project. We would like to express our gratitude to our research supervisor, Engr. Faraz Humayun for his invaluable advice, guidance and his enormous patience throughout the development of the research.

In addition, we would also like to express our gratitude to our loving parent and friends who had helped and given me encouragement.

POWER MONITORING AND MANAGEMENT SYSTEM (PMMS)

ABSTRACT

Power Monitoring and Management system is about developing a system capable enough to monitor as well as control the appliances used in an Electrical System (Residential, Commercial or Industrial). The designed system would be a specific functional solution for the purpose of Monitoring, Controlling and Automation.

Power Monitoring and Management System would be a 24/7 operating system, which will allow the use of power in optimum condition. Power crises are a major issue in this era, the effective usage of power can be an answer to many power related question.

PMMS is designed in a specific way to monitor all the appliances individually, and can manage them manually as well as automatically. The uniqueness of this system relies upon its dual functionality of monitoring and automated management, in one single system.

TABLE OF CONTENTS

DECLARATION				
APPROVAL FOR SUBMISSION			3	
ACKNOWLEDGEMENTS			5	
ABSTRACT			6	
TABLE OF CONTENTS				
LIST OF FIGURES				
LIST OF SYMBOLS / ABBREVIATIONS				
LIST OF APPENDICES				
CHAPTE	R			
1	1 INTRODUCTION		13	
	1.1	Background	13	
	1.2	Problem Statements	13	
	1.3	Aims and Objectives	14	
	1.4	Scope of Project	14	
2	LITE	16		
	2.1	System Overview	16	
		2.1.1 Arduino Mega	17	
		2.1.2 Voltage Monitoring Circuit	22	
		2.1.3 Current Sensor (ACS-712)	24	
		2.1.4 GSM Module (ICOMSAT V1.1)	28	
		2.1.5 Relay (OST-S-105-DM)	30	
		2.1.6 Liquid Crystal Display (LCD)	31	

3	DESI	CN AND	METHODOLOGY	33	
	3.1	DESIGN AND METHODOLOGY 3.1 Monitoring			
	3.1	3.1.1	Monitoring Module Design	33 33	
		3.1.2	Methodology of Monitoring Module	35	
	3.2	Contro		35	
		3.2.1	Controlling Module Design	35	
		3.2.2	Automated Controlling	37	
		3.2.3	Methodology for Controlling Module	37	
4	IMPI	.MENTA	TION	38	
	4.1	IMPLMENTATION 4.1 Monitoring			
		4.1.1	Implementation Voltage Monitoring Circuitry	38	
		4.1.2	Implementation of Current Sensors	38	
		4.1.3	GSM based Monitoring	39	
	4.2	Contro		39	
		4.2.1	Controlling via GSM Module	39	
		4.2.2	Automated Controlling	39	
	4.3		ations & Limitations with Implementation	40	
5	DESI	ILTS AN	D DISCUSSIONS	41	
	5.1		Testing of Resistive Loads		
	5.2	Testing of Capacitive Load			
	5.3	II at line	Testing of Inductive Load		
	5.4		g of Combined Loads	42	
	5.5 100W Light Bulb				
	5.6	15W Energy Saver			
	5.7		Monitoring Testing (KWH)	44	
	3.7	Bliefy			
	CON	or riero	N AND RECOMMENDATIONS	40	
)		Conclu		40	
	6.1		mendation	40	
	6.2	Recom	Intelligation		

REFERENCES

47