STAND ALONE POWER SUPPLY

MUHAMMAD ALI RAYDHA BIN OTHMAN

MUHAMMAD AQMAL HAKKIM BIN AJMAN

This report is submitted in partial of requirement for the Diploma in Electrical Engineering

Faculty of Electrical Engineering (Power)

UNIVERSITI TEKNOLOGI MARA PASIR GUDANG

SEPTEMBER 2015

ACKNOWLEDGEMENT

First of all I want to thank you Allah for giving us the chances to finish this report in time and making us strong to accept and fight every hardship that come to us. Furthermore we like to say thank you to both of our beloved parent for giving us full support and motivational from the start until now even so we are far from each other.

Moreover, we like to thank to our supervisor, Dr Anuar Mohamad who the one guide us from zero to now to completing this report successfully and in time. Also thank you for not giving up on us and always giving support from behind.

ABSTRACT

The main objective of our project is to change the supply energy of any small voltage gadgets to become a stand alone device for a very long lasting purpose. Therefore, we add an alternative supply input to the gadgets. From adding another non-renewable energy, we make an improvise by providing a renewable energy resources to the device like a phone charger. One of the renewable energy is solar energy that can be converted to electrical energy by using a solar panel.

However, by using solar panel there is still some modification needed to be done. In some moment the solar panel cannot produce a productive energy for given output because of the movement of sun from east to the west. Therefore an upgrade is apply to the solar panel by adding a motor to the panel so that it can rotate according to the movement of the sun. By doing so, the solar panel can absorb full intensity of light.

In conclusion, any device like phone charger is commonly use, therefore several improvement is needed to the device to make it more efficient and perform well in any type of condition.

	2.5	Light Dependent Resistor (LDR)	10
		2.5.1 Characteristics	11
		2.5.1.1 Types of Photo Resistors	11
		2.5.1.2 Wavelength Dependency	11
		2.5.1.3 Sensitivity	12
		2.5.1.4 Latency	13
		2.5.2 Construction and properties of Photo resistors	13
	2.6	Microcontroller (Arduino UNO)	14
		2.6.1 Function of Arduino UNO	15
	2.7	Light Emitting Diode (LED)	19
3	**METHODOLOGY**		
	3.1	Block Diagram	21
	3.2	Flowchart	22
	3.3	Working Principle	23
		3.3.1 Solar Panel and LDR	23
		3.3.2 Servo Motor	23
		3.3.3 Output Voltage	24
4	**RESULT AND DISCUSSION**		
	4.1	Project Circuit	25
	4.2	Charging Solar Panel	26
	4.3	Hardware Implementation Result	27
	4.4	Project Coding	29
	4.5	Operation of the Sun-Tracking Solar Panel	32
		4.5.1 How Sun-Tracking Solar Panel Works	33
	4.6	Troubleshooting 33	
5	**CONCLUSION, PROJECT PLANNING & REFERENCE**		
	5.1	Conclusion	35
	5.2	Project Planning	36

5.2.1 Recommendations 36
5.2.2 Gantt Chart FYP 1 37
5.2.3 Gantt Chart FYP 2 38
5.4 Reference 38