

**DESIGN, SIMULATION AND BUILD OF MONITORING AND CONTROL
SYSTEM FOR STAND ALONE SOLAR PV-BATTERY POWER SUPPLY
SYSTEM**

By

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

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This thesis discusses the design, simulation, and builds a monitoring and control system of a standalone Solar PV-Battery Power System. The work in this thesis examined 2 different kinds of batteries which are lead-acid battery and supercapacitor as the backup for the Solar PV Power System to serve the determined load whenever output of the Solar PV was interrupted by the local cloud.

The experiment of the Solar PV system and its monitoring system has been carried out successfully. By using the developed monitoring system, the examination of battery as the Solar PV system back up were also successfully conducted. The examination results shown that the supercapacitor has faster respond to bear the power load because it has faster charging characteristic than that the Lead-Acid battery. However, the examination results also shown that the supercapacitor cannot serve the load for longer periods because the supercapacitor has faster discharging characteristic.As variable power generator, the output Solar PV power system fully depends on local solar irradiation which cannot be controlled.Change in Solar PV power system output may occur within in less than a minute,thus combination with conventional battery may provide better back up for fast change in Solar PV power system output.

Keywords:Solar PV, Solar Panel Power Supply System, Supercapacitor, Lead – Acid Battery, Monitoring



DEDICATION

For my beloved mother Elisabeth Sri Sudarmi

For my beloved sisters Stefani Dian Nugraheni and Martina Arum Setiawati and my

brother Leonardus Sri Harjanto

For my fiancé Martin Thomas Sadmoko



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