ABSTRACT

The success of a nanosatellite mission will be rely on their power control system. The power control is a crtical part of the nanosatellite, because without power the nanosatellite will not be able to operate. Therefore, in a nanosatellite will be required a subsystem that capable to supply, reserve, and distribute power, this subsystem called Electrical Power System (EPS).

There are two components that play an important role in the design of EPS in this final project, which is battery charger ic and load switch. Battery charger ic has several uses, in addition to controlling the charging of the battery, battery charger ic features such as power path that serves to select the path between the solar panels and the battery as a source of power to the nanosatellite subsystems. This system also utilize a load switch which already integrated to a microcontroller to control the power distribution and regulation to the subsystem.

Power path features applied to this EPS prototype allow it to minimize battery usage, because the battery power is only used as much as 4.8% at time of eclipse. In addition, the load switch features can turn off the power line to the load if the battery capacity begins to decrease, so it can further save battery power. When EPS prototype is tested on earth conditions it takes 8 hours to charge 9.3% of battery capacity, while for discharging the battery with a load of 0.765 Watt, EPS prototype can last for 25 hours to supply power to the load.

Keyword: *nanosatellite, EPS, load switch, battery charger ic, power path*