

ABSTRACT

The use of electrical power in meeting household and industrial needs for inductively reactive loads can cause a decrease in the power factor. The decline in the power factor is a problem that must be minimized, because it can make the quality of electrical power not optimal which is detrimental to consumers and decreases the ability to supply electrical power to electrical energy suppliers. This loss can be reduced by the presence of capacitive reactive power by installing capacitors. Therefore, we need a tool that can improve the power factor and increase efficiency for distribution systems under inductive loads.

The tool that will be made using a lumped compensation capacitor bank uses the reactive power compensator calculation method to get the required capacitor capacitance. The microcontroller on the capacitor bank device uses the NodeMCU ESP 8266 as a connecting device with the Internet of Things server. In this final project, power factor improvement has been obtained with an average error of 0.008 at a set point of 0.95.

Keywords: Power Factor, Capacitor Bank, Lumped Compensation, Internet of Things.