

# **SMART ELECTRICITY ENERGY MONITORING SYSTEM**

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## **ABSTRACT**

Voltage constant are probably the most important part in power distribution's industry especially for domestic user such as hospitals, factories, airport other places that related with emergency cases including University. As known, University consists of many essential building that need constant voltage such as clinic , server room, building of dentistry and many more. In power system, there are many problems that we cannot obtain voltage that is in their range. In addition, unstable voltage are probably the most important power quality problem affecting industrial customers. In industry, customers that are using sensitive equipment will definitely facing huge loss because of unstable voltage. Recently, power quality data are collected manually by chargeman using power quality meter. Chargeman need to install the power quality meter at distribution switchgear and get the data a week after. To mitigate this problem, an open source Smart Electrical Energy Monitoring System was implemented. The main goal of this system is to provide a very simple, user friendly and reliable monitoring system that is capable of reading recent voltage, current and real power from any building electrical panel with database ability. The system is based on Arduino Uno boards as for reading and processing the data (current and voltage) from the sensor and Arduino Ethernet Shield for sending the data to the database.

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 BACKGROUND OF STUDY**

In worldwide industry, customers that are using sensitive equipment will definitely facing huge loss because of unstable voltage. The equipment can be damaged if unstable voltage always occurred. Generally, unstable voltage are caused by fault in distribution and transmission system. The performance of unstable can be estimated by determining the area that easy to get this voltage sag happened. The area that easy to having this voltage sag are similar to the region of the network that includes buses and lines where the occurrence of faults will lead to voltages lower than the sensitivity threshold of a load.

It is essential to control and organized the behavior of power quality intended to reduce unstable voltage occurrences and getting a better environment. Getting the objective come true is not an easy way, chargeman need to have detail record of power behavior frequently. Chargeman should enable to monitor their energy consumption by implementing an Energy Monitoring System with database ability.