

CHAPTER I

PRELIMINARY

1.1 Background

Electricity is one of main energy source that's needed nowadays. Almost all equipment used by humans using electrical energy as the power source. Electricity become increasingly popular because it is easy to be converted into other energy and easy to transmit from one place to another.

Electricity generated from the plant system. One of the important component in a power plant system is generator which convert the mechanical energy into electricity. Two main parts of the generator are a stator and a rotor. The stator is part of a generator that can't be rotating, consisting of a magnetic field. The rotor is rotatable component, consisting of a coil which electrified.

The monitoring system on rotation speed and output voltage of electric generator usually only use the LCD (Liquid Crystal Display) or monitor as a display of measurement results. It seems as an old technology compare to the newest technologies which combine automation and internet.

The idea of monitoring system on rotation speed and output voltage of electric generator web-based is for monitoring the output condition of generator. These technologies easily the monitoring process of long-term period and can save the data easier. In this final project will design and create a monitoring system on rotation speed and output voltage of an electric

generator that will be accessed via the web using TCP / IP connection. This system is created as a laboratory scale.

1.2 Problems

From the background above, can be seen some problems:

1. How to create a monitoring system for rotational speed and the output voltage of an electrical generator using an Arduino system.
2. How to create a display outputs system on output of generator that are connected to the Internet using TCP / IP connection.

1.3 Objectives

Based on the formulation of the problem, this research aims to:

1. Design a monitoring system on the rotational speed and the output voltage of electrical generator based on Arduino.
2. Make the display of measurement system using web with TCP / IP connection.

1.4 Benefits

The benefits of this research are:

1. Produce a web-based monitoring system on the rotational speed and the output voltage of electrical generator.
2. The research can be applied in actual plant.
3. For materials learning, especially for the students of Electrical Engineering Department UMS about arduino as a web server.
4. Being a research study on future if there are some people want to develop this system.

1.5 Limitations

This design can achieve the desired goals and objectives, given the following restrictions.

1. Using the rotational speed sensors to determine the generator speed and voltage sensors to measure the output voltage.
2. UTP cable is used for the connection to the internet.
3. On the web, there are graphic chart of rotational speed and the output voltage from the electric generator for monitoring process.