

ABSTRACT

Weather observation is one of the important factors in agriculture. Data from weather observations can be used for various things, including to predict future risks due to these weather conditions. An Automatic Weather Station (AWS) is needed to read weather conditions continuously.

Some of the devices that will be built for the AWS system are data communication, sensors, and power supply. AWS is usually installed in certain areas where there is no power source. So, it takes a power supply system that can stand alone and has a security system that can monitor the components connected to the system in real time.

This study successfully designed a power supply system for a weather station that is equipped with current and voltage measurement features for its load as well as a warning system feature in case of interference on GSM SIM900-based Weather Station. Based on the results of the study the system using solar cell modules has an efficiency of 14,1% and is supported with the help of batteries that can be recharged through solar energy. Using the INA219 sensor to measure the voltage and load current connected to devices that have an error percentage value of less than 1%, the data is then uploaded to Thingspeak. Testing of component safety systems at the Weather Station is conducted using Magnetic reed sensors capable of detecting changes when the separation distance between the sensor and other magnets is more than 3cm.

Keywords: weather station, power supply, INA219, GSM, magnetic reed, SMS.