

ABSTRACT

A laboratory with ideal environmental conditions is a place that requires facilities and infrastructure that must be available in tertiary institutions not to affect the test results. Factors that can affect laboratory test results include vibration and temperature. To ensure that the Monitoring is needed to ensure that the laboratory is always in ideal environmental conditions will be carried out by measuring vibration and temperature in the laboratory using the Internet of Things concept. The temperature monitoring system utilizes Arduino Uno as a microcontroller and Wi-Fi module on ESP32. SW-420 sensor and DHT11 sensor are used as vibration and temperature detectors. The analysis was carried out by analyzing the performance of the SW-420 sensor and the DHT11 sensor in detecting vibration and temperature in the laboratory according to ideal environmental conditions. The DHT11 sensor has a temperature reading accuracy of 93% with an average error of 7%. The SW-420 sensor used is capable of detecting vibrations according to the sensitivity that has been set. The monitoring system is capable of reading laboratory conditions per the given temperature and vibration tolerances.

Keywords: *Sensor SW-420, sensor DHT11, ESP32, monitoring, Internet of Things.*