# ABSTRACT

*The design and construction of a water control device and an automated irrigation system for lettuce plants based on the Internet of Things (IoT) is conducted by utilizing the DHT22 sensor to monitor environmental temperature and humidity, alongside an ultrasonic sensor to measure the water level in the irrigation container. This system is controlled by the ESP8266 module, which acts as the brain of the circuit, capable of sending and receiving data in real-time over a Wi-Fi network. By employing the DHT22 sensor, the system can measure soil moisture and air temperature, both of which are crucial factors in the growth of lettuce plants. The ultrasonic sensor ensures the availability of water in the irrigation container, allowing for automatic watering without manual intervention.*

*By using a relay to control the water pump, the system can efficiently manage the irrigation of plants according to their specific needs. The data obtained from the sensors will be processed and analyzed by the ESP8266, which will then decide when to turn the water pump on or off. The application of IoT technology in this system is expected to enhance agricultural productivity by reducing excessive water usage and simplifying plant management. Furthermore, the system can be accessed and monitored remotely through a web-based application or mobile device, providing convenience for farmers in managing their crops.*

***Keywords***: *Internet of Things, Sensor, Actuator, ESP8266.*