## ABSTRACT

Reptile cages that are made to measure and regulate ideal temperature and humidity conditions are very important for reptiles that have the characteristic of not being able to regulate their own body temperature and only following the ambient temperature. In addition to regulating the temperature and humidity of the reptile cage automatically, the cage will also be equipped with a monitoring application that can be accessed on the user's smart device.

The author has created an application that can be used for monitoring the cage which can regulate an ideal temperature and humidity for reptiles automatically, with nodeMCU as controller of DHT11 sensor, relay, and L298N motor driver, each of which can be used for each using a temperature meter and humidity, continue on /off the heating lamp and turn on /off the air spray dynamo motor. The application receives the results of real-time temperature and humidity sensors that are sent through the firebase database using a Wi-Fi network. The application will also add additional features to provide messages containing information about the reptiles that are placed in the data accessed from the MySQL database. This study will discuss the functionality of the button and the layout of the application, the accuracy level of the DH11 sensor, as well as the effective level of the heating lamps and air-spray motor dynamo respectively in increasing the temperature and increasing the humidity of the enclosure.

Based on the test results obtained from the button functionality and application layout experiment, it gives the expected results. The functionality of each button in the application and the layout of the application displays according to design. Testing the accuracy of the DHT11 sensor has different results, for the measurement of the average temperature obtained an accuracy rate of 95.34% while the average humidity measurement obtained an accuracy level of 77.29%. Testing the effectiveness of the heating lamp in raising the temperature of the cage if it decreases from ideal conditions gets a result of 0.073 ℃ / s while the water *spray* dynamo motor gets a result of 0.51% / s in raising the humidity level of the cage when the humidity of the cage decreases from ideal conditions



**Keywords:** Reptile, DHT11 Sensor, Database, Temperature and Humidity