ABSTRACT

The quality of the soil for growing a plant has an important role so that the plant can grow well, therefore to plant a plant it is necessary to know the quality of the soil that is suitable for hiding the plant. There include properties that can determine the quality of the soil, namely soil chemical properties, namely temperature, soil pH, moisture and NPK (Nitrogen, Phosphate and Potassium).

This study aims to make monitoring of soil predictions for plants so that users can receive information about the condition of the soil quality of plants through an android application. This system detects soil pH, temperature, humidity, and NPK found in the soil. In this design process, starting from predictions of land data that is sent to the IoT platform and displayed through the application.

Throughput QoS testing gets an average of 33.81 kbps with an index of 4, Packet Loss gets an average of 0 with an index of 4, delay gets an average of 142.12 ms with an index of 4, and jitter gets an average of 141.584 ms with an index of 1 THIPHON version. There is a difference in the output produced by the system when sensor data is sent to Firebase, this occurs because the very fast sensor reading process is not optimal due to the addition of a fairly complicated process for sending each sensor data reading to Firebase and a survey is carried out regarding the appearance and user satisfaction in using application of land wealth with a value range of 1 (very bad) to 5 (very good). The final result of this test is in the form of soil element monitoring data and plant predictions that are displayed through the application. The design and creation of mobile applications utilize the Kodular platform as a service provider for developing applications based on the Android operating system.

***Keywords**: Internet of Things, Firebase, Kodular, Soil quality*