ABSTRACT

Weather conditions are closely related to our daily basis. Various sectors depend on weather conditions or are directly affected by the weather. The plantation, fisheries, and transportation sectors are sectors that are closely related to weather conditions. Information on weather conditions can help determine the level of productivity of a sector. This information can be used to determine appropriate steps in anticipating extreme weather changes.

Long Range (LoRa) is a spread spectrum modulation technique that utilizes long-distance transmission capabilities using low power consumption. This technique can be integrated with sensors that detect various changes in environmental conditions. This final project designs a model system using Long Range Wide Area Network (LoRaWAN) as a means to unify weather conditions by connecting LoRa nodes and device users. Users can view all observations using a mobile application called Wever.

Wever can provide 100% of the observation data sent from the Antares server. LoRa shows high performance in measurements at a distance of 50 meters. The RSSI value when using SF 7 is -75.36 dBm and at SF 11 is -93.94 dBm. At a distance of 250 meters, the use of SF 11 succeeded in sending 36 out of 40 data, while SF 7 experienced a packet loss of 77.5%. All measurements have an SNR of no more than -18 dB with a maximum delay of about 0.09 ms.

Keyword: *Internet of Things, LoRa,* Antares*., Android, User Interface.*