

## **ABSTRACT**

*Elderly is a population group that is vulnerable to various health problems. Because the physical condition of the elderly continues to decline, resulting in the elderly not being able to be independent in taking care of their bodies so that the elderly must take medication. When using medicines, a storage area with suitable temperature and humidity is required. Drugs must be stored at a certain temperature and humidity to reduce and prevent the risk of drug degradation that affects the quality and safety of drugs. Besides that, the elderly will also easily forget because of their age, so technology in the health sector is needed that is capable of being a reminder assistant to take medicine for the elderly and a tool that is able to see the condition of where the medicine is stored. This research will design a smart medical box using internet of things technology for the elderly as a reminder to take medicine. The medical box uses LoRa Lynx32 and LoRa microcontrollers to send data received to the platform via the internet, which in this study will use the Telkom IoT Platform platform. LoRa is used because of its advantages that can cover a wider area than wifi. Results will also be displayed on the 16x2 LCD to facilitate the monitoring process. As for this study, the HW-201 IR sensor is used to detect the availability of drugs in the box, DHT 22 is used to measure the temperature in the box, where the optimal temperature in the box is 15 - 30oC. DS3231 is used as a realtime clock. The IoT-based medical box monitoring system can work well, which is marked by the success of the stepper motor working according to the specified schedule and the HW-201 IR sensor detecting falling drugs. The DHT22 sensor obtains an average error of 4.6% when it is temperature and obtains an average error of 0.9% when measuring humidity. The average SNR value obtained was -8.74 dB, while the average RSSI value obtained was -114.14 dBm.*

**Keywords:** *Internet of things, Medical box, LoRa, Telkom IoT Platform, Elderly.*