

Thesis Title	Prototyping and Evaluating LoRaWAN Communication Devices
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ABSTRACT

In this research, presents the development and apply a DIY LoRaWAN Gateway operating in the 925MHz frequency band. LoRaWAN technology is renowned for its long-range communication capabilities and low power usage. Currently, it is utilized by only certain groups of users and is not as widespread as Wi-Fi due to the high prices of gateways in the market. Consequently, existing gateways are tailored for devices with reasonable costs. Therefore, we propose designing a cost-effective, moderately sized, customizable, and high-quality gateway that significantly reduces costs.

In this development, utilize Raspberry Pi as the main processing unit and integrate it with LoRaHAT for Pi. We configure the gateway to enable seamless communication between the gateway, EndNode, and NetworkServer, and ensure flexibility in modifying component formats to suit various project requirements.

The goal of this project is to make LoRaWAN technology accessible through efficient, cost-effective solutions that can be self-built and cater to diverse target groups, such as individual users, makers, and smart farm owners. The aim is to facilitate widespread adoption and promote innovation in IoT usage.

Keywords: LoRaWAN, Gateway, Gps Tracker, LoRa