# ABSTRACT

*This final project aims to secure communications in Internet of Things (IoT) services using the WireGuard VPN protocol. With the increasing number of devices connected in IoT networks, data security and privacy are becoming a major challenge. The proposed solution is the implementation of WireGuard VPN on MikroTik servers and ESP32 clients to ensure encrypted and secure communication. The project involved configuring MikroTik as a VPN server and ESP32 as a client, which was connected via WiFi using the WireGuard protocol. Testing is carried out to ensure communication connectivity and security, as well as analyze the system's performance in the face of potential attacks such as sniffing. The test results show that the WireGuard VPN implementation is able to protect the data sent between the ESP32 and the server, as well as maintain the integrity and confidentiality of the information. Thus, this project provides an effective solution to improve communication security in IoT services.*

*Keywords:* ESP32, *Internet Of Things* (*IoT*), Security, *Wireguard*