# ABSTRACT

Amidst the increasing reliance on Internet of Things (IoT) devices and internet networks, the challenge of maintaining network security is becoming increasingly crucial, especially for resource-constrained small and medium-sized enterprises. This document proposes the development of a Single Board Computer Raspberry Pi 5-based Intrusion Detection System (IDS) system as an economical, flexible, and efficient solution to detect cyber threats in real-time, such as malware, DoS attacks, port scanning, and network intrusions.

The system utilizes the open-source software Snort and is configured to send automatic notifications via the Telegram platform under 2 second to improve response to potential attacks. The project considered technical, economic, legal, and sustainability aspects, and conducted a comparative analysis of hardware and software alternatives before settling on the Raspberry Pi 5 as the primary solution.

The analysis results show that the Raspberry Pi 5-based IDS is capable of Running an IDS system that reaches small and medium-sized organizations with cost efficiency with under 2,5 million rupiah, ease of development, high accurate with 100% attack detection, only 1.9% false positive rate and responsive detection capabilities of suspicious network traffic.

Keyword : IDS, Raspberry Pi 5, IoT, Snort, *Real Time*