Developing Next-Gen IoT Solutions with Contiki OS and Cooja Simulator

Project: Smart Bands System Analysis and Simulation Using Cooja

Team Details

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Abstract

The advancement of wearable technology has led to the development of smart bands capable of monitoring various safety parameters. This project focuses on the analysis and simulation of a smart bands system using the Cooja simulator within Contiki OS. The system consists of parent and child bands that communicate wirelessly to monitor the child's status and alert the parent in case of emergencies such as falls or prolonged absence.

Using Cooja, the simulation emulates real-world scenarios with motes representing the smart bands. Each band undergoes a pairing process to establish secure communication, followed by an operation mode where the child band sends periodic updates to the parent band. The system is designed to trigger alarms for events like missing signals or detecting a fall, ensuring timely alerts for the parent.

Through this simulation, the project aims to demonstrate the reliability and effectiveness of smart bands systems in enhancing child safety and providing peace of mind for parents.