

# **TRAINER INTERNET OF THINGS MENGGUNAKAN SIMULASI HARDWARE-IN-THE-LOOP PADA MATLAB SIMULINK WAIJUNG BLOCKSET VERSI 2**

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## **ABSTRACT**

The Internet of Things (IoT) is changing rapidly, ushering in a new era of connected smart devices and gadgets. In learning electronics engineering, understanding and realizing IoT concepts in real life is important. The research proposes a learning strategy that uses real student IoT project challenges. Learning emphasizes direct experience by involving students in real IoT projects to create active learning. In this lesson, students are invited to plan, implement, and solve problems in IoT projects in the laboratory.

This research method uses research and development procedures to improve academic abilities and teach students how to solve problems and be flexible and creative. Students learn about IoT project development through project challenges, from coming up with ideas to making them happen by working on real projects. Through this collaboration strategy, students are required to think critically and use knowledge from various fields due to the rapid changes in electronic engineering. This approach also encourages students to get used to working on real projects regularly, improving their critical thinking skills in solving problems. The results of IoT design and implementation using hardware-in-the-loop in MATLAB Simulink Waijung Blockset version 2 can be realized as an actual project in the laboratory. This project is used as a learning challenge for students to learn IoT through practicum. As a result of testing their academic abilities, students experienced academic improvement. Based on the survey, the average IoT learner using this strategy scored 4.06 (decent or good). Students are interested in learning strategies for learning IoT through tangible projects.

**Kata Kunci:** *Internet of Things, Learning, Hardware-in-the-loop, Waijung Blockset versi 2*