
Abstract– Dakon Mathematics (Dakota) is a visual media teaching aid for elementary school mathematics (SD) grade IV, which is used to determine the value of the Least Common Multiple (KPK) and the Greatest Common Factor (FPB). Several researchers have built the Dakota props and have tested them. The results state that the Dakota teaching aids can improve students' understanding. In previous studies, Dakota was operated manually without involving information technology. The problem with the manual Dakota tool is in its flexibility and duration in providing accurate feedback to students. Internet of Things (IoT) technology aims to solve flexibility problems and provide real-time and precise feedback to students. The objectives of the research are threefold, namely: (1) Identifying the need for integration of Dakota tools with IoT, (2) Building Dakota systems and tools integrated with IoT, (3) Evaluation of the performance of IoT-based Dakota tools. The first stage carried out is problem identification. It has been carried out to identify development requirements for integrating Dakota tools with IoT at this stage. The results of the system development needs that have been built have been designed to design the system architecture, followed by designing system functionality, designing hardware for IoT, and designing block diagrams on the system that has been built. Research has succeeded in implementing the IoT-based Dakota system. The second stage is that all tool design and implementation activities have been carried out. The third stage evaluates system implementation results based on functionality, feedback accuracy, and delayed response time. All functionality has worked 100% according to the system design that was built, the feedback accuracy according to the system is 100%, and the delay (between the sensor and the microcontroller) for 100 questions is 1 second, for the delay (between the microcontroller and the IoT platform) is 5 seconds.

Keywords: Dakota IoT; Microcontroller; Module Wi-Fi; Sensor; System Performance
