Internet of Things (IoT) Based Free Fall Motion Instructions in Physics Subjects for Class X Students

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Abstract

Physics subjects are one of the most difficult materials for students to understand. According to the research that has been done, props are one of the answers to make it easier for students to understand physics lessons. Since most physical materials are directly related to everyday life, props serve as a practical medium to facilitate the learning process. Learning physics concepts is easier to understand by using props which we simulate based on real events. One of the materials in physics class is free-fall motion. In this material, when an object falls from a height and has no initial velocity, its falling velocity is calculated. In this study, we apply the Internet of Things (IoT) to the props of free fall material and by adding Ambrose's concepts namely practice and feedback, so that students can better understand the material of free-fall motion. By implementing IoT, the system can read, record, and evaluate the experimental activities performed by users, and users who already have an account can access it online through the website. The system was evaluated based on system functionality and accuracy generated by the system. Based on the test results, it was found that all functions included in the system were 100% working. Based on the three tests performed, the system achieved an average accuracy of 80%.

Keywords : Props, Free Fall Motion, Internet of Things (IoT), System Performance, Ambrose