

ABSTRACT

In daily life, humans often use their hands to interact between humans and machines, or humans and computers. In archery games, archery is an activity using a bow to shoot arrows. Unity is an application for developing multi-platform games that are designed to be easier to use. In this study the authors made a tool that is a prototype of arc sensor and arrow-based sensor using the Complementary Filter method, where both hands can be used as a controller using the IMU sensor MPU9250 and NodeMCU ESP 8266 which will be implemented in the archery game by using the unity.

Based on the test results, hardware simulation of IMU sensor-based bow and arrow control gloves, IMU DMP sensor data using Complementary Filter and not using a filter results in error pitch, roll and yaw values. The error pitch value is 0.084804%, the error roll value is 0.471659% and the yaw error value is 0.016805%. The results show that the overall performance of the prototype glove system for the suitability of the movement of the IMU sensor with the player in Unity3D has 100% success in motion suitability, with the delay of sending IMU sensor data using the Complementary Filter to produce the smallest time duration of 0.0078 ms and delay time the largest is obtained 0.0181 ms.

Keywords: *Archery, Unity, Complementary Filter, MPU9250 and NodeMCU ESP 8266*