

## **ABSTRACT**

*According to the large Indonesian dictionary archery is a sport that uses arrows and bows as a competition tool. Archery has also been proven to have existed since 5000 years ago, which was originally used for hunting. but in this day and age archery is used to practice accuracy and focus. In this archery sport the use of bows and arrows has techniques, the exercises carried out by these athletes take a long time and require quite expensive equipment. In this research, a hardware capture device that uses an MPU9250 sensor and ESP32 uses a Complementary filter as an analysis of hand movements that will be raised on the unit. The results obtained in this test are the angle tests performed can read or capture movement but there is still a problem that is the position of the sensor sometimes changes which can be caused by clothing material. In this test, it can also be seen that the complementary filter has 2 options, namely if we want a good enough value, then complementary will give the smoothest value, but the filter will lose responsiveness and when we want a responsive filter, a good enough value data will be difficult to obtain. The data value that is said to be quite good in this test is the value that does not deviate far from the true value.*

**Keywords:** MPU9250, Complementary Filter, *Motion Detection*, Archery, Blender and ESP32.