

ABSTRACT

Technological advances in various industrial sectors have been increasingly rapid in recent times. Research related to industrial robots has been conducted previously with different control systems to run robots. In previous studies, many studies have been conducted related to the topic of this final project. The problems in this study are detecting gestures based on 6 categories of gestures using the SVM method, analyzing the performance of gesture classification from each category of gestures using the SVM method, and designing the performance of the control system on the robot using hand gesture classification. In previous studies, many experiments have been conducted such as controlling robots using hand gestures, but not many have used IMU sensors or MPU6050 sensors as the main components in a study.

Also, the Support Vector Machine method is still rarely used to classify objects. Therefore, by designing a prototype in the form of a glove that has been equipped with several components to control the robot by following the direction of hand gestures without using a remote or joystick, it is considered more efficient in various ways and makes it easier for someone to control the robot. In most studies, why do we need to use an IMU sensor, because it can produce output in the form of a fairly accurate orientation. It is hoped that by making this prototype, it can prove that using an IMU sensor can produce more accurate data than using other components. Overall, the SVM model shows good accuracy in classifying various hand gestures, especially in more linear and simple movements as evidenced by the accuracy results using Support Vector Machine reaching 90%. However, for gestures involving more complex movements such as "Rotating", further optimization of sensor data processing or classification techniques is needed to improve accuracy.

Kata Kunci: *IMU Sensor, Support Vector Machine, Hand Gestur, Robot.*