

## ABSTRACT

*Prosthesis is an artificial tool that resembles the shape of a body part to replace parts of the body that are lost or damaged due to trauma, disease, or birth conditions. Prosthetic hand is a tool used to help people with disabilities. The purpose of this research is to design a prosthetic hand with control through an electromyogram with a sensor system on the fingers. The contribution of this research is the system can be run by using muscle signals and also avoid objects with temperatures that are too high. In order for the system to work properly, it is necessary to place electromyographic leads on the right muscles and also to place sensors at the closest point to the object. To tap electrical muscle using a surface electrode which is then processed by an electromyography module consisting of an instrument amplifier, high pass filter and low pass filter. The MLX90614 sensor is used to detect temperature and control the prosthetic hand so that it can avoid objects that are too hot. Data processing is carried out by Arduino as the data processor of the Electromyogram signal and the MLX90614 sensor which will then be used to control the servo motor. The results of measurements that have been carried out the success rate of EMG to move hands by 97%. As for the accuracy of the temperature sensor response to heat by 100%. The results of the study showed that the accuracy produced by electromyography and temperature sensors was quite high. The results of this research tool are appropriate to be used to help people with disabilities.*

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*Keywords : Prosthesis, Electromyogram, Temperature*