ABSTRAK

Penggunaan tangan prostetik sangat dibutuhkan oleh penyandang disabilitas, khususnya pasien yang mengalami amputasi lengan bawah atau telapak. Dengan pengembangan tangan prostetik ini diharapkan akan membantu para penyandang disabilitas amputasi telapak tangan. Dengan menggunakan metode pengenalan *machine learning* dan monitoring pada *platform IoT*, hasil dari penyadapan sinyal EMG akan dikelompokkan oleh *machine learning* dan aktifitas sinyal EMG akan dibaca oleh aplikasi Android. Terdapat 2 klasifikasi pengambilan data sinyal EMG, yaitu responden dengan kebiasaan melatih kekuatan otot tangan dan responden yang tidak terbiasa melatih kekuatan otot tangan. Data sinyal EMG diolah menggunakan sistem pengenalan ekstraksi fitur jenis RMS (*Root Means Square*), STE (*Short Time Energy*), dan IEMG (*Intregrated Electromyograph*). Hasil dari masing-masing ekstraksi fitur berhasil dibandingkan dan diambil yang paling baik diantara ketiganya, hasil paling baik yaitu jenis ekstraksi fitur RMS dengan nilai *Euclidean Distance* 5938,905. Kemudian *platform IoT* yang memiliki nilai rata-rata error 1,99%, yang berhasil mengirim data lebih dari satu data perdetik. *Softwere* android ini mampu memonitoring jarak jauh aktifitas sinyal EMG yang disadap.

Kata kunci : Ekstraksi Fitur, EMG, IoT

ABSTRACK

The use of prosthetic hands is urgently needed by persons with disabilities, especially patients who have had a forearm or palm amputation. With the development of this prosthetic hand, it is hoped that it will help people with disabilities with palm amputation. By using machine learning recognition and monitoring methods on the IoT platform, the results of intercepting EMG signals will be grouped by machine learning and EMG signal activity will be read by Android applications. There are 2 classifications of EMG signal data collection, namely respondents with the habit of training hand muscle strength and respondents who are not used to training hand muscle strength. EMG signal data is processed using a feature extraction recognition system of the RMS (Root Means Square), STE (Short Time Energy) and IEMG (Intregrated Electromyograph) types. The results of each feature extraction were successfully compared and the best result was taken of the three, the best result was the RMS feature extraction type with a Euclidean Distance value of 5938.905. Then the IoT platform, which has an average error value of 1.99%, manages to send more than one data per second. This Android software is capable of remote monitoring of intercepted EMG signal activity.

Keywords : Feature Extraction, EMG, IoT