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Development of Telemedicine System for Electromyography Via Ethernet

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The objective of this study was to develop an integrated electromyography for monitoring musculoskeletal disorder, coupled with a medical server system which is capable of maintaining a distributed process, using reasonable computer resources. This electromyography was developed around an embedded system which included wireless communication system in personal area network, Ethernet system, SD Card for saving the measuring data. The server application which developed using JAVA technology was constructed in Linux. New software architecture was developed for actual use in the field. In order to implement this architecture, we employed multithreading Java, which allowed for the execution of a distributed process, using only a small amount of computer resources. We successfully constructed and tested telemedical electromyography, the data transfer failure rate of the developed system was determined to be less than 0.05%.

Keywords : Telemedicine, Musculoskeletal Disorder, Ethernet