

**Siti Fauziah Toha
Iskandar Al-Thani Mahmood
Asan Gani Abdul Muthalif**

**MECHATRONICS
ENGINEERING
PROJECTS**

Theory and Applications

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MECHATRONICS ENGINEERING PROJECTS: THEORY AND APPLICATIONS

Editors

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5. NONINVERSIVE EMG SIGNALS MEASUREMENT AND CONTROL OF ROBOTIC SYSTEM FOR REHABILITATION

Shahrul Na'im Sidek, Ahmad Jazlan Haja Mohideen, Wan Nizam Hakim Wan
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ABSTRACT

This project is about the development of a mobile robot that can be controlled myoelectrically in three directions: left, right and straight. The idea is for individual who is bedridden or wheelchair bound to use their muscles to control robot's movement thus, muscle stiffness and numbness can be prevented. After all the root cause of muscle stiffness and numbness is due to muscle inactivity for a period of time. An electromyogram (EMG) is a measurement of muscular electrical activity where the stronger the muscle activity, the higher the current amplitude generated. EMG is usually used to detect abnormalities in the muscles and to detect muscle diseases. However for this application, EMG signal is used in human-robot-interaction. By acquiring EMG signal from the human, it will capture the inner state of the human and this signal could be sent to a microcontroller system to control a robot, providing an alternative to a more typical mobile robot control using remote controls or pre-programmed routines.

Keywords: EMG controlled mobile robot, rehabilitation, wireless control