IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 10, June 2025
Impact Factor: 7.67

EMG Controlled Bionic Arm

Pruthvi M[1], Tawheed Pasha[2], Tejas Venkatesh[3], Uday Sallagundala[4], Mrs. S Savitha[5]
[1,2,3,4]UG Scholars, Department of Electronics and Communication
[5]Assisstant Professor, Department of Electronics and Communication
East Point College of Engineering and Technology, Bangalore, Karnataka, India

Abstract: *Advanced prosthetic hand development faces the challenge of replicating the human hand's complexity, particularly in achieving intuitive, multi-degree-of-freedom control via EMG signals. To address this, a novel approach focuses on leveraging the deterministic structure of initial muscle contractions, using feature extraction and artificial neural networks for enhanced pattern classification. This method aims to increase controllable functions without added user effort. Simultaneously, improvements in energy efficiency, weight reduction, and miniaturization are pursued through low-power microcontrollers, optimized motor control, lightweight materials, and efficient power supplies. The overarching goal is to create prosthetic hands that offer increased functionality, reduced user burden, and a more natural control experience, bridging the gap between current technology and the capabilities of the biological hand.*

Keywords: prosthetic hand development

DOI: 10.48175/IJARSCT-28817