

**Unique id: SUP-021**

**Team Name: Tech NovaCorps**

## **Inexpensive Prosthetic Hand based on EMG Signal Acquired from the Hand of The Amputee**

This project presents an inexpensive prosthetic hand controlled by electromyographic (EMG) signals acquired from the upper arm muscles of amputees. Employing the Muscle BioAmp Candy provided by Upside Down Labs, which consists of a compact muscle sensor with a bandpass filter (72 – 720Hz) and fixed gain (x2420), the system ensures precise EMG sensing. The Arduino Nano microcontroller acts as a brain for signal processing, enhancing the prosthetic hand's responsiveness. Remarkably cost-effective, the overall system along with the Muscle BioAmp Candy costs around only 3,000 rupees or 37 USD significantly reducing expenses compared to market alternatives, which can cost from 5,000 USD upto 8,000 USD (415K-664K INR). This project not only showcases advancements in EMG-based prosthetics but also emphasizes the economic viability of integrating cutting-edge technologies for improved accessibility and affordability.

*Participants Name:*

- 1) Rajdeep Saha, Electronics and Communication Engineering*
- 2) Abhijit Biswas, Electronics and Communication Engineering*
- 3) Saradwat Sen, Electronics and Communication Engineering*
- 4) Sayani Dhali, Electronics and Communication Engineering*