

Project I Description

Project Name: Brainwave Controlled 3D Printed Robotic Hand

Sponsor: LAU

Team Size: 3 MEE Students

Project Overview

The number of amputees is increasing worldwide due to wars, car crashes, accidents, etc... occurring, people are being subjected to living without an arm or a hand. Due to the high cost of a prosthetic arm, amputees tend to live without artificial limbs. This project will develop a low cost brainwave and voice controlled 3D printed robotic arm for amputees. All components of the proposed design including the brainwave handset will be 3D printed. The hand will also have pressure sensors on the fingertip to help in better control of balanced grips.

Project Areas and Majors needed

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| <ul style="list-style-type: none"> • Kinematics/CAE (1 MEE Student) | <ul style="list-style-type: none"> • Instrumentation (2 MEE Student) |
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Project Deliverables

Design and Build the following component of the system:

- Select and adapt an available 3D printed model for a hand.
- Design embedded pressure sensors in the fingertips.
- Build and integrate the system to be controlled using myRIO and LabVIEW.
- Design and build a 3D printed headset that uses the Mark IV Ultracortex Headset Kit and an added microphone.
- Integrate the Headset and the microphone to properly control the hand.