

Mimicking Robotic "Smart" Prosthetic Arm

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The age of robotics is upon us as we blast through the 21st century, our technology continues to increase exponentially. Rapid advancements in 3D printing is revolutionizing the world of engineering and prototyping. Sensors made to detect bending and force are inexpensive and can be obtained easily over the internet and utilized to accurately control robotic arms and prosthesis. These advancements have allowed for quality prosthesis to become much more cost effective and still be precisely controlled by a variety of sensors. The products of this technological era can be readily provided at low cost to patients in need of prosthesis or robotic limbs. InMoov is a life-sized 3D printed humanoid robot that was designed as part of the large open source project by Gael Langevin and published on inmoov.fr and thingiverse.com. I downloaded, printed, and constructed the right forearm and hand from this ongoing project. After completion I designed and built a sensor gauntlet that somewhat resembles Nintendo's Power Glove and is equipped with flex and pressure sensors. Using the sensor data from the gauntlet I was able to control the robotic arm to mimic movement and to gently grasp delicate objects.

Awards Won:

Fourth Award of \$500