**KNUCKLES, THE ASSISTIVE ROBOTIC ARM**

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**Abstract**

A stationary 3D-printed voice-activated robotic arm that can retrieve objects and give them to a user upon request. This project is designed with the intent to help the elderly and lab researchers. Controlled by the Robot Operating System (ROS), the arm has five degrees of freedom and a two finger gripper. The two types of input sensors are a multi-directional microphone and a camera. The Intel Speech Enabling Developer Kit microphone is connected to a Raspberry Pi3+ and Alexa Voice Service. The RealSense camera detects AprilTags, a form of QR code. To request an object, the user needs to say: "Alexa trigger Knuckles to give me the bottle".