

# The Comparison of Verbalized Feedback in Human to Computer Interfacing Versus Human to Human Interaction

Social Robot Rehabilitation Assistant for Stroke Patients  
Dr. Eric Wade | Kea Francis| Heon Joo

## Design and Method

### Components

- Rapiro robot
- Raspberry Pi 3 B
- Android Phone
- MIT App Inventor

### Connections

- Bluetooth connection from phone to Raspberry Pi



### Methodology

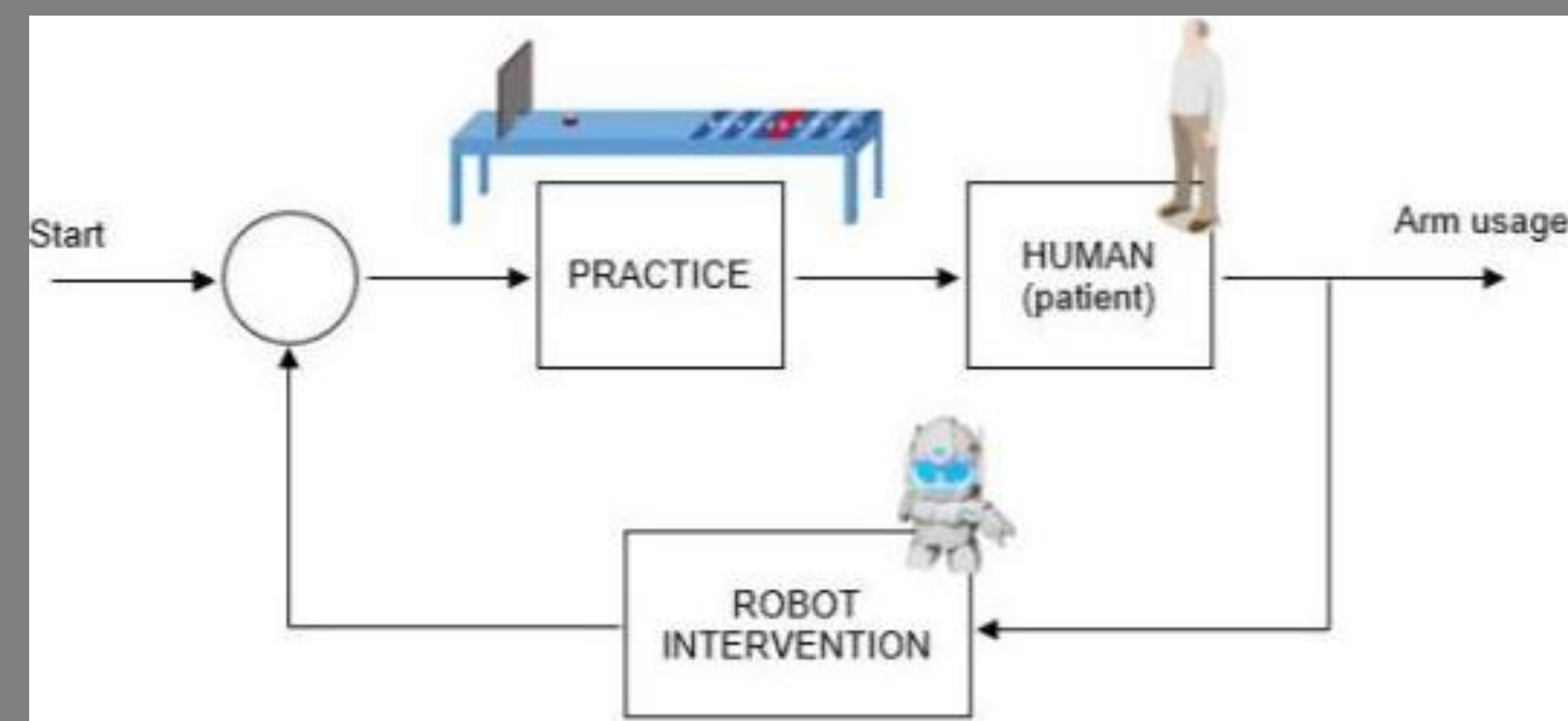
- Add phrases to the phone application on MIT App Inventor
- Download the app to android phone
- Create Python code to communicate from Pi to phone

## Thesis

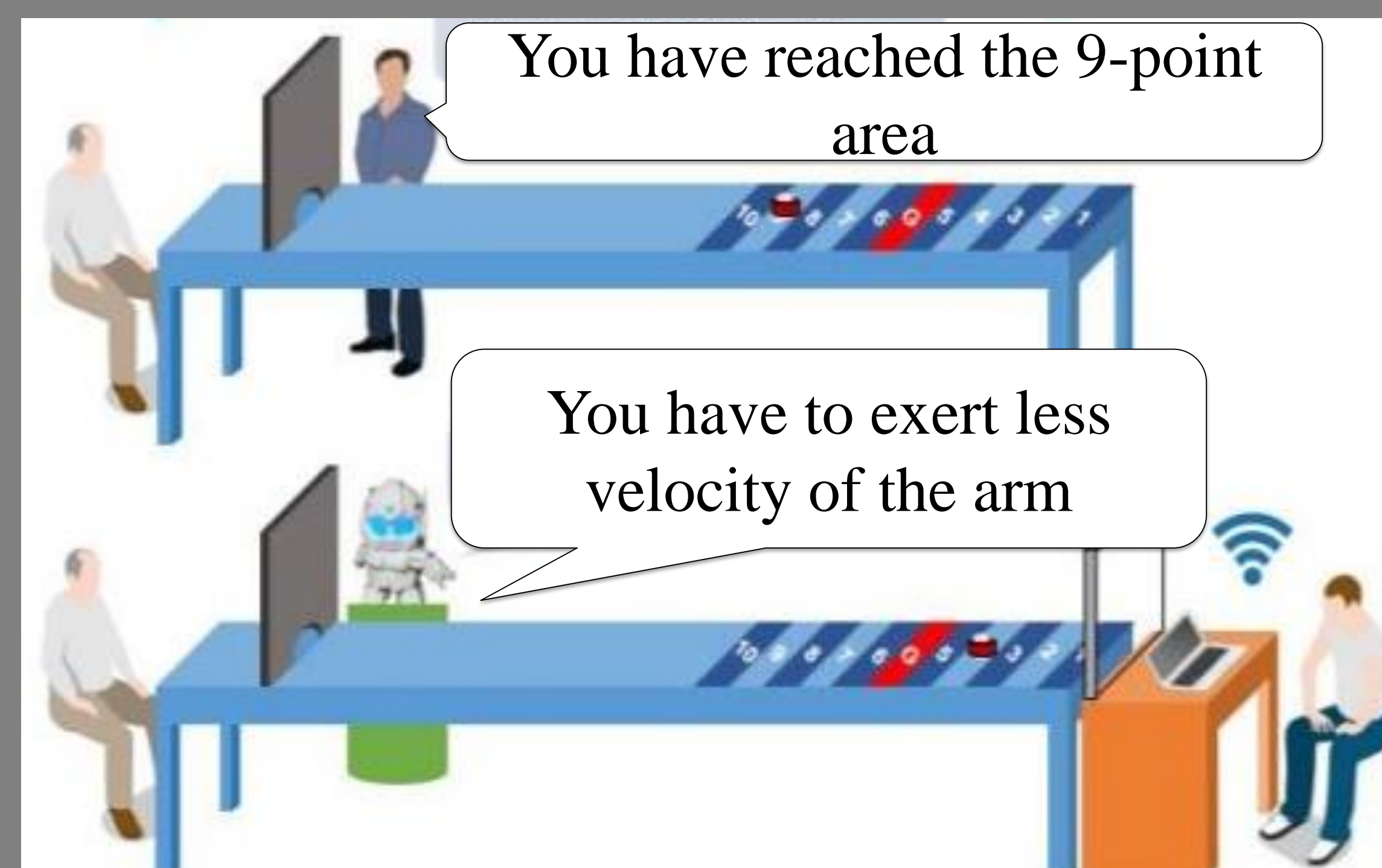
Use of the robot will result in similar motor control improvements for the participant as the human to human studies

## Proof of Concept

### Robot Feedback Response



### KR and KP Responses



## Future Improvements

### Full Autonomy

- Sharp distance sensors attached to Arduino zero will calculate distance puck moves
- Bluetooth module will then communicate data to Raspberry Pi
- Python code will be used to receive the transmission and activate appropriate Rapiro response

### Eye Contact and Movements

- In order to mimic eye contact object detection using the Raspberry Pi and machine learning will be implemented
- TensorFlow, an open source machine learning library, and OpenCV allow use of object detection on a microcontroller
- Movements will be specified and replicated using Rapiro