

FACULTY MENTOR

PhD, Moore, Raeanne

PROJECT TITLE

Google Assistant for Cognitive Rehabilitation

PROJECT DESCRIPTION

Cognitive rehabilitation programs are aimed at helping elderly adults with cognitive impairments, sleep problems and mood disturbances. Envisioning an automated two-way communication device to enhance cognitive skills, the Google Assistant for Cognitive Rehabilitation project led by Dr. Raeanne Moore prompts the patient to talk to the device to complete cognitive exercises. To address this, a Raspberry Pi microcontroller with Google Assistant API was programmed to recognize a patient's voice to provide information, start cognitive games and trigger customized rehabilitation sessions. A camera with facial recognition (OpenCV) feature and a sensor system were also integrated to the device to recognize users and output reminders. With this joint project of psychiatry and engineering application, we have the potential to greatly increase the efficiency and affordability to cognitive rehabilitation program. Moving onto the next stage, we would like to optimize the hardware and software features of the device (i.e. less physical interaction between the user and the device, add a framework to the prototype) so that the device is user friendly and suitable for testing by research participants.

INTERNS NEEDED

3-4 BS or MS students

PREREQUISITES

Skills required:

Raspberry Pi programming

Basic circuit knowledge

Preferred skills:

3D printing and laser cutting

OpenCV

Soldering