
TO: Dr. Winikus
FROM: Timothy Erckert
Subject: Progress on fine motor skills training project as of 11/18/2022
Date: 11/18/2022

PURPOSE:

The purpose of this memo is to formally update progress made on the assistive technology device since 11/11/2021.

SUMMARY:

This project is designed to use tilt sensors to assist in the training an individual's fine motor skills. The end goal is a product that can be placed on an item that needs to be carried and will alert the user visually, using LEDs, and audibly, using a buzzer, if a sensor is detecting a dip. The LED alerts will provide corrective hints to the user, allowing them to make the adjustments necessary to bring it back to level.

UPDATE ON PROGRESS:

Schematic and program logical flow has been roughly sketched based on required peripherals. Pins have been determined for peripherals that need to be directly connected to the STM32L4R5ZI and coding has been completed for microprocessor logic. Initial testing has been determined that tilt sensors best operate at an angle between 30 and 40 degrees from horizontal.

CONCERNS:

Testing has shown that tilt sensors can be "fiddly." For example, a sensor expected to only activate when tilted to the right may also activate when forward tilt is detected. Whether this is due to the angle from horizontal or not requires further testing and the current acceptable angle range may have to be adjusted.

RECOMMENDATION:

Further testing with the fully built device to isolate any bugs in the programming still to be completed. Tests isolating individual components, such as the buzzer and keypad, still need to be written, but expectations are that hardware portion of the project will be completed by 11/25/2022 and documentation will be completed by 12/2/2022.