2018

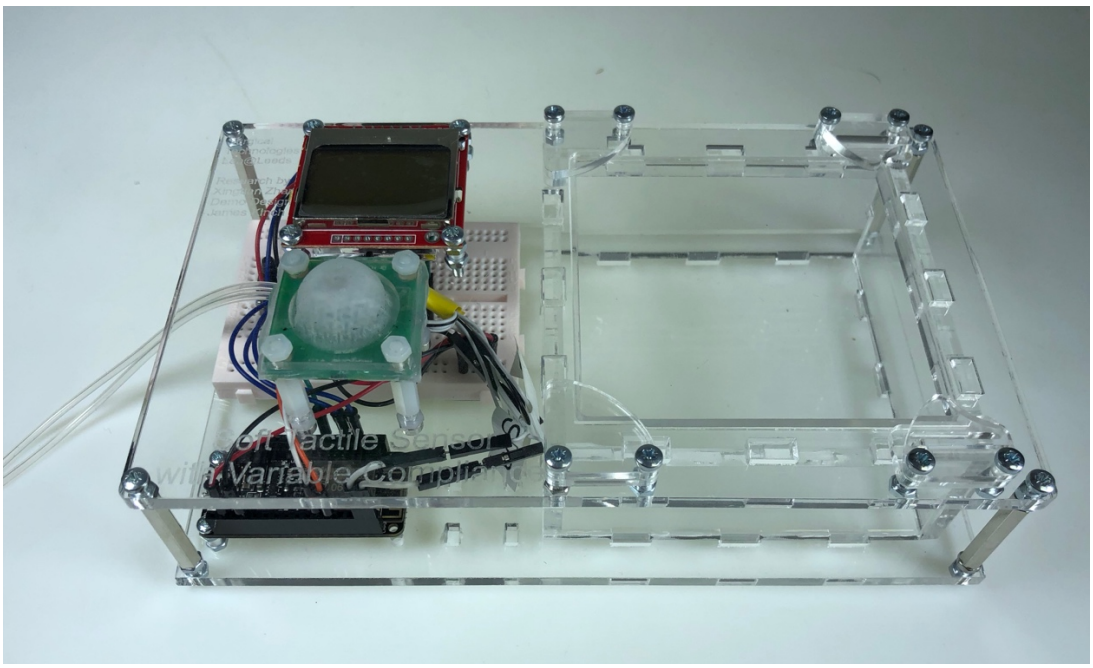
Soft Tactile Sensor with Variable Compliance

FUTURE CHANGES DOCUMENT

BY JAMES KINCH

Introduction

The purpose of this document is to provide a list of the future changes required to be made to the Soft Tactile Sensor with Variable Compliance Demo to get it into a fully functional state. As is shown in the image below, there are a number of components that still need to be fitted, as these were unavailable during the original construction of the demo rig.



Required Changes List

This is a list of all of the required changes needing to be made to the demo rig (given in sequential order):

1) **Replace the micro-controller:** because the pressure sensor being used for the demo rig requires an analog input and that the Adafruit EPS8266 controller only has a single 1V AI, the micro-controller should be replaced with an Adafruit ESP32 board.
2) **Upload new code:** because of the different micro-controller and difference in wiring, new code needs to be uploaded to get the demo rig working. Partially completed code can be found within the 'STSwVC_Demo_V2' Folder within 'Program Files'. Changes will likely need to be made to this code to get it operational. Inspect the comments within the .ino file to determine the correct wiring for the screen and pressure sensor.
3) **Add pressure pump:** as the pump required to pressurise the sensor has not arrived as of the end of the set work schedule, the pump will need to be installed and programmed. The pump, pressure sensor and variable compliance sensor will then need to be calibrated.
4) **Add buttons:** to fully demonstrate the functionality of the sensor, the pressure being applied to the sensor needs to be varied. To do this, physical buttons need to be added to the demo rig and the functionality added to the micro-controller.
5) **Add materials for testing the sensor:** materials, i.e. feathers, grass etc., should be found to demonstrate the use of the variable compliance sensor.