Flex Sensor Project

This project uses a flex sensor to describe the current tension of the sensor using the Arduino Uno board.

Initial goal:

We thought that using the flex sensor’s measurements we can calculate an approximate degree of its bending. This however failed, due to the inconsistency of the bending. The tension between its endpoints caused the middle of the sensor to bend in different ways at the same measurement time. This caused that we could not calibrate the sensor to display degrees.

Second goal:

After considering the flex sensor’s circumstances we thought a more descriptive value on the sensor’s current bend would be more appropriate. This has been achieved by taking measurement points, mapping them to values on a scale between 0 to 1, and linearly interpolating them on a range.

We marked fully bent as 1.0, strongly bent as 0.7, and slightly bent as 0.3. We then searched appropriate measurements for these values and jump between linear interpolations based on the current measurements. The value between 0 and 300 was mapped from 0.0 to 0.3, and from 300 to 800 was mapped from 0.3 to 0.7 and larger than 800 is mapped from 0.7 to 1.0. This simple solution proved to be sufficient and functional.

Later we thought that this project could be used as a peripheral to the computer, so we have implemented a mouse click functionality to the program, and thanks to the mapping we do not have double clicks, or any miss inputs.