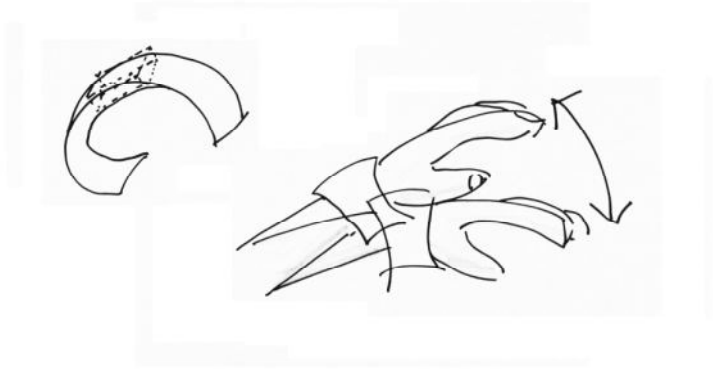
Laser Cut – Wearable Hand Drum Game



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Design Computation. MIT

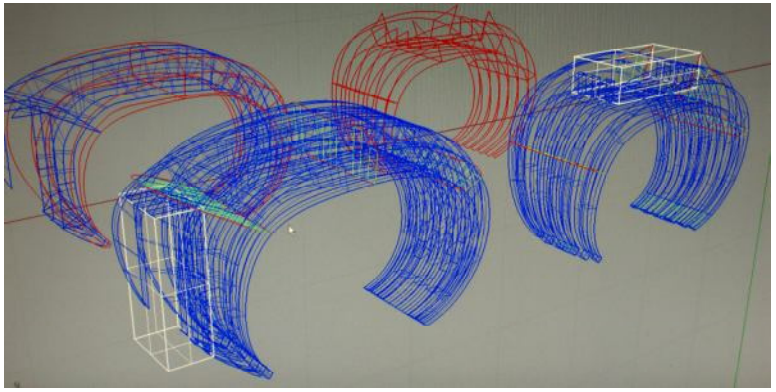
http://www.youtube.com/watch?v=GwcMx9aRNZI

http://www.youtube.com/watch?v=OxC4S_wmM5k&feature=related

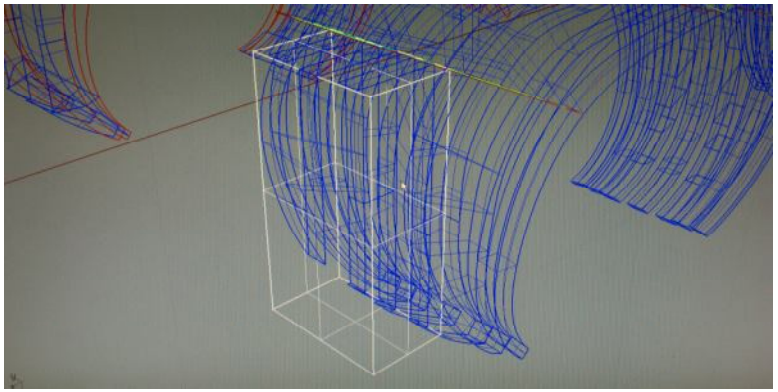
Wearable Hand Drum

I wondered a way that I can make a wearable game, a way to make a closer connection between children and game. Initially, I imagined a virtual cello using the Scratch WeDo. The tilt sensor reads the swing of right hand, and the distance sensor reads the distance between finger and the sensor. By doing that I guessed I could make a cello playing game. However when I tested the distance censor, the range that the sensor could read was a bit tight and the resolution of the sensor was not good enough to read among various notes. When I tested the distance sensor showed quite a good performance between range 40 ~ 90, however in the range lower than 50, the result was unexpected.

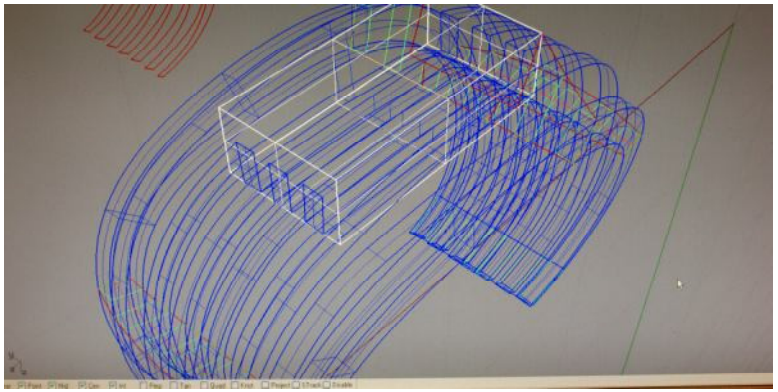
As a second step, I noticed that the distance sensor might work well as two-status reader: one for down movement and the other for up movement. I started to design a hand drum game. Here is the process I made. Unfortunately, two bracelets are a bit tight for my wrists. I need to ask to my best friend to play the hand drum. The first animation is her practicing the game. The second one is I and my friend's playing together.



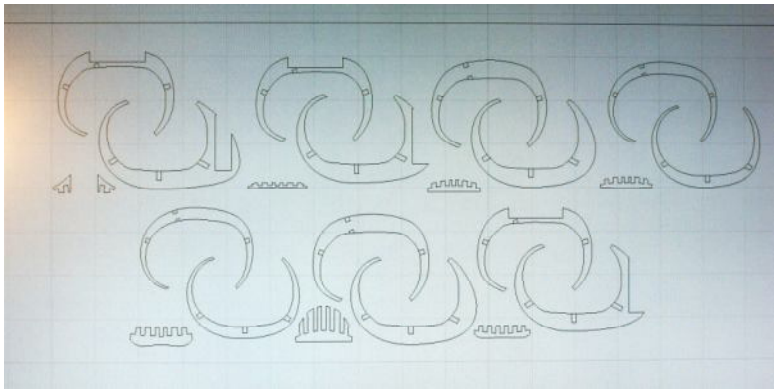
1.0 3D Model Geometry

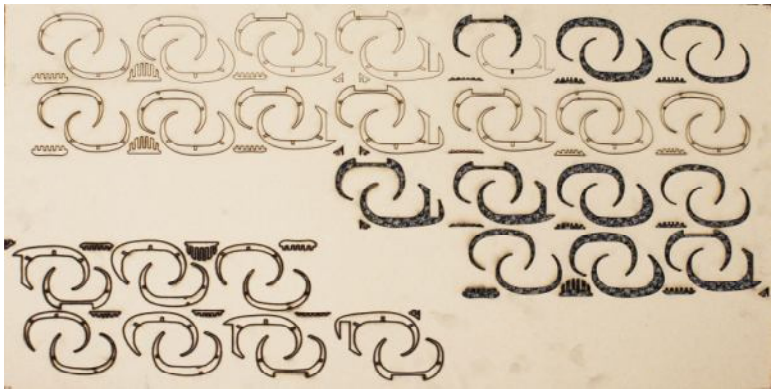


1.1 Detail of Distance Sensor Joint



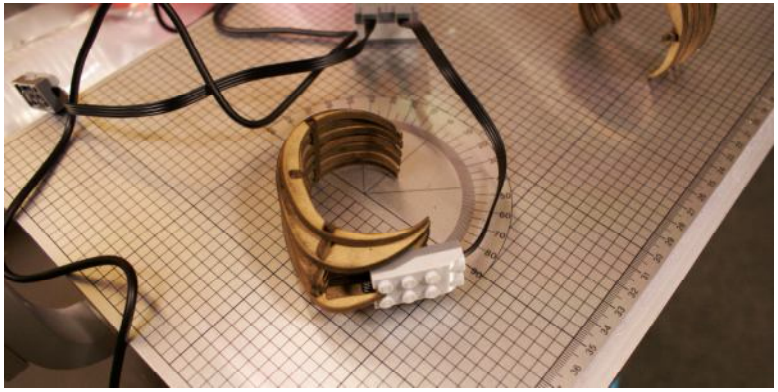
1.2 Detail of Tilt Sensor Joint


2.0 2D Drawing Parts for Laser cut

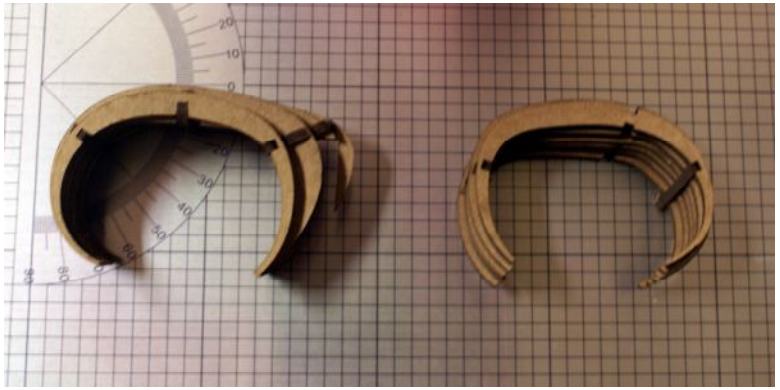

2.1 Laser cut Chip Board


2.2 Assembly & Cleaning

2.3 Assembly Finished

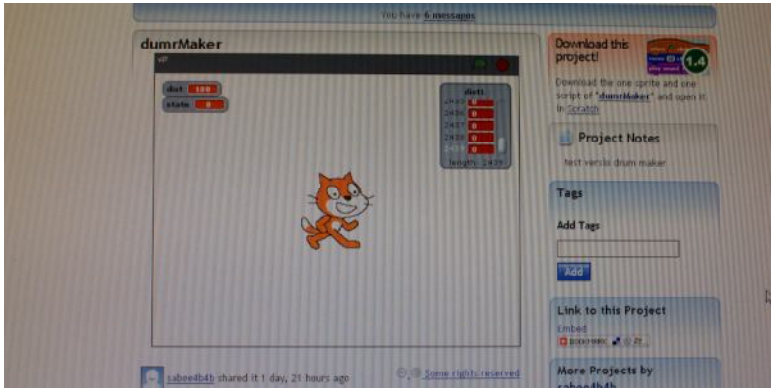


2.4 Assembly Finished – Side View



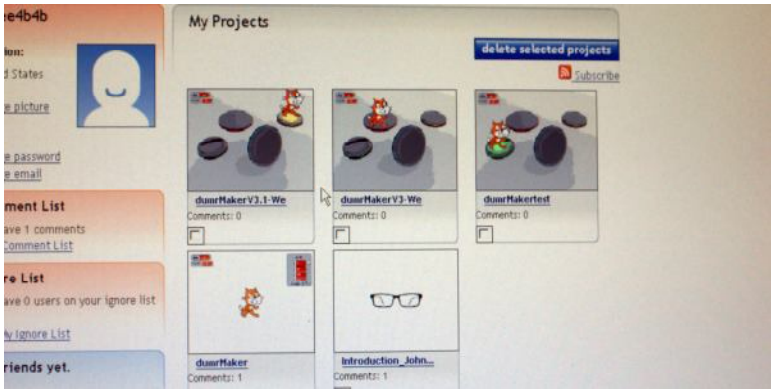
3.1 Distance Sensor Assembly

3.2 Finished Assembly : Play Ready



4.0 Initial Scratch Drum Test

4.1 Keyboards Playing Version



4.2 Development of Different Versions