

PLAYBRUSH

Taro Morimoto

PREMISE

- Brushing teeth is boring and uninteresting
- Children need extra motivation
- Gamify!
 - More fun and engaging
 - Indirectly teaches how to brush properly



+



=



THE GAME

- Brushing your teeth kills tooth baddies in the game
- In theory there can be many different games
 - The brush is just a stick with some sensors (a game controller of sort)
- Vibration can be used as a feedback mechanic from the game to the brush
- Use openFrameworks (or HAXE) to make the game
 - First prototype is done for Mac
 - The final target platform is an iPhone (also maybe Android)

SENSORS / COMPONENTS

- Uses accelerometer to detect how fast and much you're shaking the brush
 - Memsic 2125, <http://arduino.cc/en/Tutorial/Memsic2125>
 - Number of strokes or amount of accumulated movement
- Gyroscope to detect the orientation of the brush
 - Sparkfun IXZ-500 breakout, <http://wiring.org.co/learning/basics/gyroixz500.html>
 - Used to see what part of mouth is being brushed
 - Calibration is done when resting on a stand
- Bluetooth to transmit brushing data to a phone (or computer)
 - Sparkfun Bluetooth Mate Silver, <https://learn.sparkfun.com/tutorials/using-the-bluesmirf>
 - Pairing Arduino+BT on Mac, <http://www.rioleo.org/setting-up-the-arduino-pro-mini-and-bluetooth-mate-on-mac.php>
- Vibration motor to give feedback from the game to the controller
 - <http://www.instructables.com/id/Robot-Snake/step5/Add-vibration-motor/>
- Pressure sensor, or bend sensor to detect how hard or light you're brushing
 - Force you apply when brushing (not too gently and not too hard)

FIRST PROTOTYPE

- Part of first prototype
 - Accelerometer and gyro to detect movement and get some data
 - The first prototype shows how this kind of data transmitted over BT can be used to control a game
 - Very simple game that runs on mac
 - Vibration feedback
- Not part of first prototype
 - Pressure/flex sensor, complex gameplay, a phone

OTHER STUFF

- Only the head of the toothbrush is replaceable

