



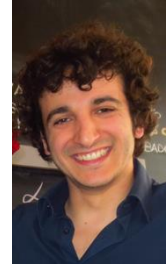
WIRELESS DEVICE FOR TONGUE PRESSURE MONITORING

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Background

Tongue proper functionalities are a key for the wellness of a person. Tongue disfunctions can be produced by different causes: stroke, cancer, down syndrome and so on. In elderly people dysphagia could lead to different pathologies, and in some cases to death. Now there isn't a non-invasive device which can help medical staff through this rehabilitation process, they all requires cables out-going the mouth, or x-ray machines.

Objectives

This research projects aims at the making and testing of a brand new wireless device for the measure of the tongue pressure over the palate. This kind of device can be used for many purposes, mainly for rehabilitation. It is designed for helping doctors or qualified people, for speech therapy, tongue and swallowing rehabilitation. The device talks to every last generation smart-phone or tablet, which shows on the screen the given pressure and the position of the tongue. The device should also be suitable for many different mouth dimensions.

Methodologies

The device uses a brand new capacitive pressure sensor, which is soft at touch, low cost and water resistant. These capacitance variation data are sent to a portable device through a Bluetooth LE connection. In Fig.1 is shown a detail of the user interface, showing the pressure intensity and the position of the tongue. The device is powered by an ultra-thin rechargeable battery, which can be recharged with wireless power transfer. The power supply will permit half an hour of work.

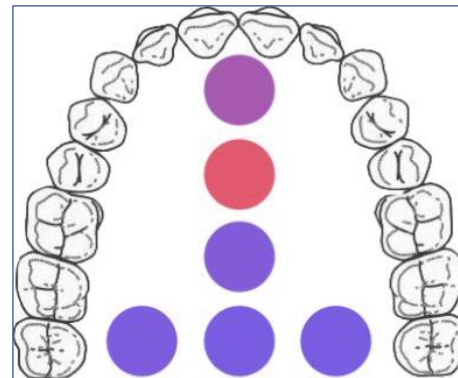


FIGURE 1. AN IMAGE OF THE USER INTERFACE ON THE APP. THE COLOR REPRESENTS THE PRESSURE INTENSITY.

Expected Results and Impact

A wireless tongue pressure sensor had been developed. It will help the medical staff through the rehabilitation process and it will also help improving the wellness of people affected by this kind of diseases/disfunctions.