Alleviare

Pure Healthcare, Pure Innovation

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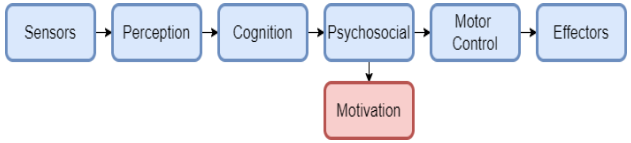
Abstract

Spirometry test measures the amount of air you breathe in and out of your lungs. It also measures how easily or fast you can blow the air out of your lungs [1]. A spirometry test can help diagnose COPD, asthma, or check lung function before a surgery.

Its main function is to strengthen lung muscles post surgery. Post surgery, patients may experience tiredness due to medications, pain while breathing, and a lack of motivation to carry out exercises. Since spirometry is tedious and monotonous, it is observed that patients lose zeal while working on their repetitions. To prevent this, an upgrade to the traditional spirometers is required.

A digital spirometer is developed with an application that introduces gamification to the tedious practice. The objective of this product is engaging the patients during their breathing sets and consequently helping them complete their repetitions. The spirometer connects with the app via Bluetooth. An illustration is shown on the mobile screen as per the patient's lung output. In the future, the team hopes to develop more illustrations to cover the interests of larger crowds.

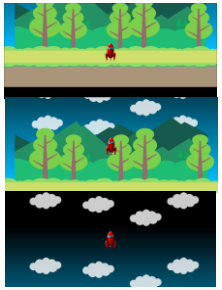


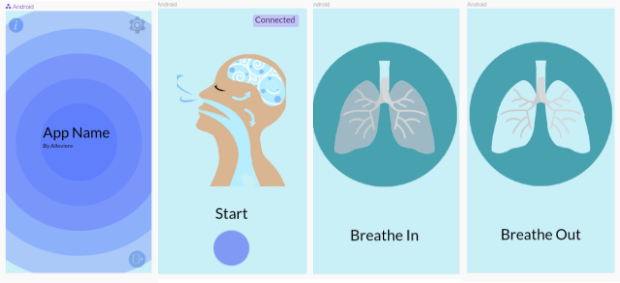
Goal

To make an application which displays a gamified experience with illustrations which can motivate the patient to practice the spirometry activity regularly.

Traditional vs Alleviare

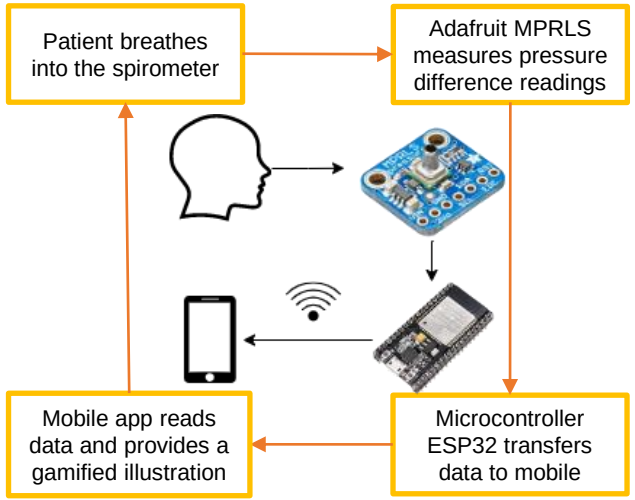
• Simple marker, no feedback • No records for the doctors • Digital spirometers are expensive • No motivational aspect	• Gamification to improve motivation • Live feedback on amount of lung pressure • Cost-effective solution • Future ability to store and retrieve data





Methodology

A wireless spirometer is connected to the phone with the help of a Wi-Fi connection.



Results

The gamified illustration shows movement according to the pressure difference created by the patient's inhale and exhale. The product creates a feeling of motivation amongst users in trying to achieve the specified limits of their breathing sets.

Future Work

- Optimize design of the spirometer
- More games to cover interests of larger crowds
- Updated sensors and hardware for improved accuracy
- Introduce storage and retrieval of data