Wind Runners: Designing a Game to Encourage Medical Adherence for Children with Asthma

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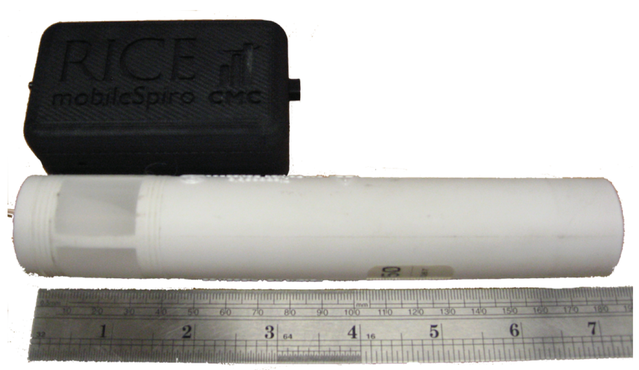
Introduction

According to the World Health Organization, asthma is the most frequently encountered chronic disease among children and afflicts approximately 235 million children. Asthma is not a lethal disease and the prognosis is good as long as the patient undertakes preventative care as directed by a physician. However, not adhering to correct medical regimens is a major, well-documented, hurdle impeding optimal care for patients with asthma. One of these preventative care regimens is the measurement of peak expiratory flow (PEF) via a spirometer. To help increase the likelihood that children with asthma will monitor their PEF on a daily basis, we are developing a mobile game called *Wind Runners* for Android devices which incorporates two novel features lacking in other health games.: 1) the inclusion of social gaming features and 2) the incorporation of the medical regimen itself (PEF measurement) into the gameplay.

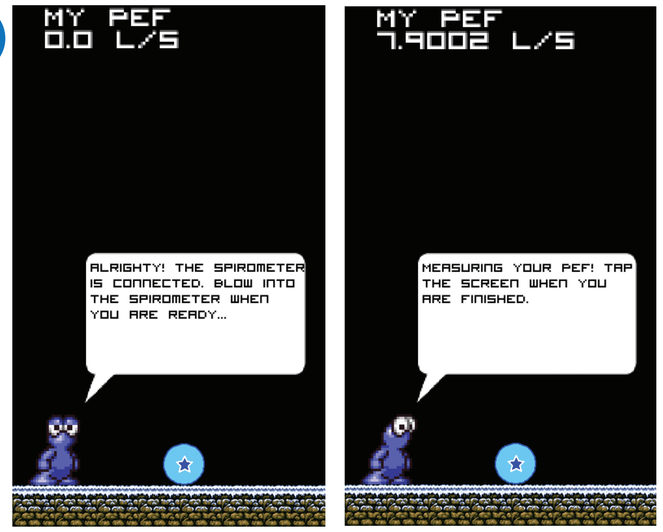
mobileSpiro



mobileSpiro is a custom spirometer which gives us access to raw data values during spirometer maneuvers. This allows us to customize the game based on the data.

Playing Wind Runners

1



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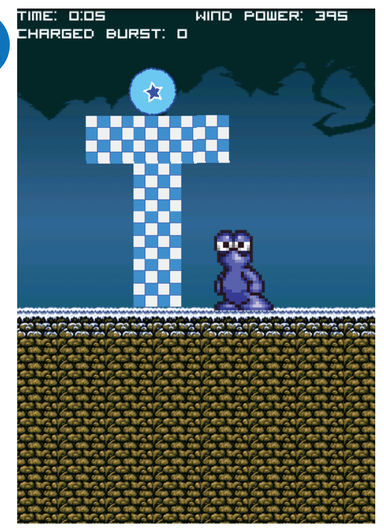

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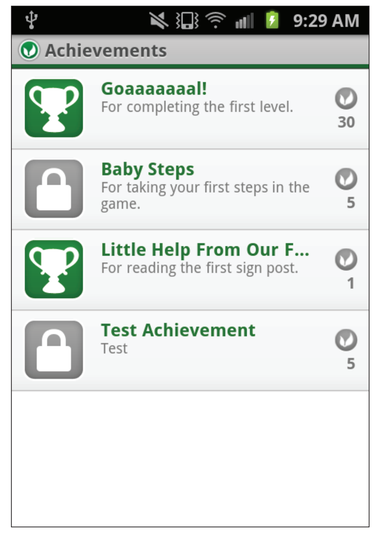

1. Measuring your PEF fills up an in-game air tank reservoir.
2. The player must get the ball to the goal in each level by using air from their reservoir tank to knock down obstacles.
3. The player completes the level once he/she gets the ball to the goal.
4. Social gaming features are provided by OpenFeint, a 3rd party social networking platform for mobile games.

Design Goals

▶Social Gaming Features

These features can provide an avenue for individuals to find, connect, and share their experiences with others who share a similar medical condition thus creating a social support structure through the game.

▶Integrating Regimen into Gameplay

Incorporating the medical regimen as a core component of the gameplay provides additional incentive for individuals to complete it.

▶Detailed Reports and Statistics

Detailed reports and statistics can better inform patients and physicians of the patient's progress. Additionally, seeing postive results in reports and statistics can encourage patients to continue performing the regimen.

▶Added Value through Expansions

Since players must continually perform the medical regimen for a long period of time, the game must remain engaging. Additional content provides one solution to this problem.

[1] Gupta, S., Chang, P., Anyigbo, N., and Sabharwal, A. mobileSpiro: Accurate Mobile Spirometry for Self-Management of Asthma. *mHealthSys 2011*.

* Preliminary artwork for Wind Runners is from: http://www.spicypixel.net/2008/01/10/gfxlib-fuzed-a-free-developer-graphic-library/

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