Speech Adventure: Cleft Therapy via Speech Recognition

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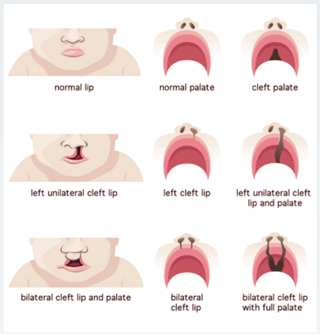
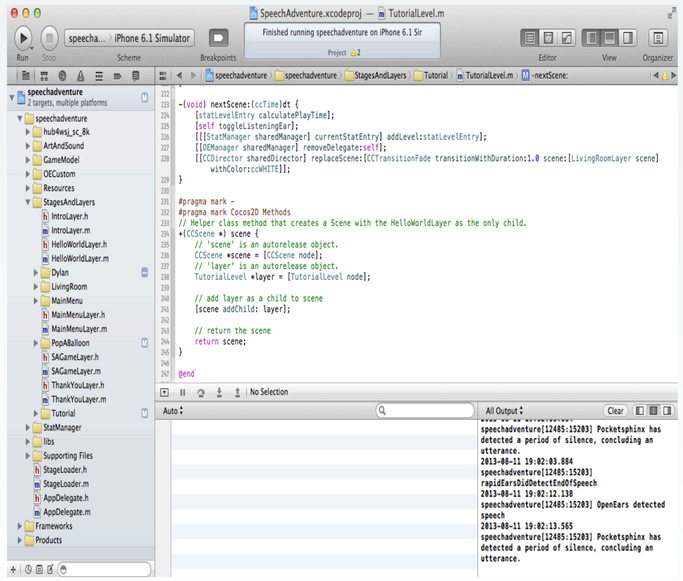
Background

- ✧Cleft Palate/Lip is a common congenital anomaly
- ✧With cleft, airflow through the nose is difficult to manipulate
- ✧Children (ages 2-6) attend traditional speech therapy
- ✧Difficult to achieve daily practice, as well as one on one interactions between child and therapist due to budget cuts at schools
- ✧Common complaints of traditional speech therapy include: boredom; difficulty engaging with the attention span of a two year old; repetitive exercises lessen confidence among children



Purpose

- ✧ To improve recovery time after cleft surgery
- ✧ Give children an aid/substitute/tool for traditional speech therapy
- ✧ Develop a game that promotes engagement, encouragement, accessibility, mobility and accurate feedback via speech recognition software
- ✧ To align with the objectives of speech therapy, Speech Adventure can also be utilized by therapists and parents



Procedures

- ✧ Understand the relationship between between therapist, child and parent
- ✧ Explore the feedback of speech pathologists to develop ways to progress the realm of speech therapy
- ✧ Investigate ideas in which are appealing and exciting for children, such as zoos and 'getting ready for the day'
- ✧ Integrate Open-Ears speech recognition engine into an interactive game
- ✧ Test and configure .dic, .langmodel, and implementation files throughout Xcode
- ✧ Manage audio files amongst the different levels for better narration
- ✧ Use that motivation to spark the development of an additional level

Results

- ✧ Rapid-Ears and Rejecto have been recently implemented, two add-ons from Open-Ears Speech Recognition Engine
- ✧ Box2D, the Cocos2D physics engine, is currently being implemented for further development of a new scene prototype
- ✧ New level consists of a football being thrown across the screen in relation to the correctness and repetitiveness of targeted plosives
- ✧ This implies that the better the child speaks, in relation to the specific plosive being targeted, the farther the ball will fly

Aknowlegements

Zachary Rubin, Sri Kurniawan, Assistive Technology Lab, Colt Hangen, Matthew Guthaus, SURF-IT, NSF, UC:Santa Cruz