Project Abstract

Funny Math dynamically alters the difficulty of a web-based math logic game by analyzing the user's facial expressions. The motivation for this project is to provide a dynamic learning experience to help users strengthen their problem solving skills in an innovative way. People are often not honest with themselves, and actions speak louder than words. By analyzing facial expressions, we hope to better evaluate a person's interest and learning performance in real time.

The front-end will be built using Javascript and its frameworks. We will use the open-source game on 0hh1.com. This game is based around logic and spatial reasoning and provides an entertaining way for users to enhance their problem solving abilities. Funny Math will be web-based and available at our currently registered domain name: mathy.website. 0hh1 is written entirely in Javascript, so we can easily interface with it through a web browser and the VisageSDK. The VisageSDK is the framework that we will be using to detect and analyze facial expressions.

VisageSDK will be used with Javascript bindings (HTML5 edition) in order to track the user’s facial expressions and emotions. VisageSDK provides readings for the following emotions: Anger, Disgust, Fear, Happiness, Sadness, and Surprise. Eye tracking data is also provided. If the user continually displays high levels of anger, fear, or sadness, then the game will provide more hints, or uncover a correct block. The average emotion score will be calculated at the end of each game. If the user was bored most of the time, then the next given puzzle will have increased difficulty (more squares). If high level of anger or frustration, the difficulty of the next puzzle will be decreased.

Current Deadlines:

**March 4:** Have 0hh1 working on website.

**March 11:** Basic interactivity with Visage on our website.

**March 18:** Interim report. Have working example of dynamic difficulty changing.

**March 28:** Ready to second round of presentations. Fix any bugs that arise. Have multiple examples of dynamic difficulty changing.

**April 15:** Report completed. Final poster draft completed. Tasks will be split up among group members.

**April 22:** Final version of poster submitted.

**April 27:** Poster day

**May 2:** Final report submitted. 60 second video submitted. Will be split among group members.