

Team Number: 200

School Name: Saturday Science and Math Academy

Area of Science: Computer Science

Project Title: Animatrix

Problem Definition

Animators worldwide are sacrificing the quality of their videos due to the difficulty of animating mouths. Rather than add an extra month or two to the drawing process and another week or so for editing, they skip over what could be amazing to fit their personal quota of uploading as often as possible. If the mouth, possibly the most challenging yet important part of the face, were able to be rendered quickly and smoothly, aspiring and professional animators could focus on making new content, scrutinizing other details, or meeting deadlines.

Problem Solution

Using speech recognition software, we can program the computer to display an image (or series of images) whenever it hears a letter. Using facial recognition software, the computer would be able to understand and recreate the structure of a human face, particularly the mouth. The computer will be able to make instantaneous alterations to each frame's image matrix and create transitions between them for fluid moving mouth.

Progress to Date

This is our first time in this competition and neither of us have much experience coding, so, this far, our team has done ample research on the fundamentals of text-to-speech software and animation. We have learned about sound waves and how programs like Google and Alexa recognize commands. Because a phrase's sound wave looks roughly the same, no matter what pitch the voice is at, words and phrases like "Hey Cortana" and "Ok Google" are able to be

identified simply by “listening” for the sound wave. Unfortunately, we have only done research thus far in our project, but we have gotten a lot of important and useful information to apply.

Expected Results

Over the next month, we plan to get our base code in on Python: mapping faces and matching them to the sounds that play when they are on screen. In January, we will focus on displaying the proper images for each letter, sound, and pause.

Team Members

Dominique James

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Sponsoring Teacher

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Citations

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<https://electronics.howstuffworks.com/gadgets/high-tech-gadgets/facial-recognition.htm>

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