

Main user detection and matching

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Summary:

In this project, we plan to detect the faces in front of front-facing camera, and recognize main user by the size of faces and the moving of mouth. Then we will do the matching and judge if the main user is the registered one.

Background:

We plan to use SIFT or SURF to depict the features of faces. If their performance or quality is not satisfying, we will find other descriptors instead. Besides, we just use the front facing camera of iPad to finish the whole project till now.

The challenge:

This project is a part of great challenge, aiming for providing Interactive English education for poverty students in Africa. We want the detection to be real-time and the accuracy to be as high as possible. Real-time detection and matching are not that easy to be realized in mobile devices considering efficiency and storage problem. We hope to finish this detection program so that other projects can use it to build further applications.

Goals & Deliverables:

We plan to detect the faces in the front-facing camera and mark them with yellow rectangle, and recognize the main user's face among them with an orange rectangle. If the main user is the registered one, the color of rectangle will change to green. If we can get ahead of the schedule, we hope to give the application more functions, such as recording the time of continuous utilization, identifying whether the user

is happy about the using experience.

As people in front of the facing-camera can see themselves in the screen and know the ground truth, so we only need to do a few experiments to evaluate the validity of our project easily.

We are confident of completing it in four weeks.

Schedule:

1	Yicong Wu	Do research on matching method and drawing flowchart
	Sibo Wang	Designing data structures and definitions of functions
2	Yicong Wu	Programing to detect all the faces in the image
	Sibo Wang	Using the camera to capture and display the processed images
3	Yicong Wu	Programing to match main user's face with registered user's face Check-point write up
	Sibo Wang	Combing two parts of codes together and debug them Programing to pick out the main user's face
4	Yicong Wu	Trying to do some test on face matching part and writing up
	Sibo Wang	Doing tests and optimizing on whole process