FACE AND SPEECH TRANSCRIBER WITH RECOGNITION (FASTR)

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Project Summary

FASTR is a personal mobile device that performs real-time face and speech recognition to identify and store important information about persons of interest that the user of the device interacts with. FASTR takes pictures and parses speech to create profiles on people that it manages to identify. If the device recognizes somebody who already has a profile, it will output the profile’s information to the user instead of creating a new one.

Problem and Need

The world is growing more interconnected, more populated, and people are living ever longer. Those three trends both together and individually ensure that there are more people to remember and more to remember about them. Remembering names and other details is difficult, especially in an environment where one must interact with and remember the names and needs of many people or if there is memory disease at play.

The customer satisfaction in many business situations can be improved if the business person is able to directly refer to someone by name. However, in many businesses, the staff may have only met the client once—when they checked in. If the staff can recall the name of the client, the client will feel more appreciated and likely to reuse or recommend the business. This is true for other service industries, restaurants especially. Additionally, the quality of life for those suffering from memory diseases or the natural degradation of memory would also be improved by being able to function in a more self-sufficient manner.

Our project aims to assist business persons and scientists in networking and forming connections with people during conferences or other workplace interactions as well as improve the quality of life for those suffering with memory disease.

Significance

Remembering someone’s name can have an immediate and positive effect going into a conversation; on the same note, forgetting a name when the other party expected you to know it can set talks off to an awkward start. Furthermore, remembering other details such as their occupation can give clues as to the person’s purpose, allowing for easier and smoother interaction. By improving the consistency of the recollection of important information, FASTR will have a direct impact on improving results in these situations.

Goal

The desired results of the semester project are to create a personal wearable device that, combined with a software suite, is able to collect and provide data over individuals of interest to provide users aid and relief with the task of recollection of those individuals of interest’s names and information.

Customer/User Analysis

We believe that our primary user base will be those people in the business and hospitality industry. Each of these fields requires a lot of interpersonal interactions, which could be aided by the usage of FASTR. Our device will aim to eliminate the instances in which the user forgets the name of a client or patron
whom they’ve previously encountered; this will allow them to better serve their customers and provide a truly personal experience.

Another important area that we feel our project is relevant to is for those with memory issues or related disabilities. FASTR could serve as a tool for them to help cope with an inconsistent or failing memory. The goal would be that by prompting names and other key points of information, FASTR could serve as a memory jog that would allow them to recall other related information and function with more independence.

The technical expertise needed to use FASTR is low. All the user needs to be able to do is get the appropriate applications installed on a PC and connect the wearable device via Bluetooth. The users don’t even need to be able to install the applications themselves, they just need access to someone with the basic computer skills to do it for them. After that they just need to be able to run the program.

**Deliverables**

The final deliverable for FASTR consists of two major components which form an integrated system: a wearable device, and a computer application. The wearable device is an embedded system with a camera, microphone, headphones, and wireless communication with which it transmits and receives images and audio. The application, running on a computer, receives images and audio from the wearable via wireless. It then performs facial recognition and natural language processing to identify people after which it provides feedback to the device/user.

**Terminal Objective**

Our terminal objective is to create a device that will offload the burden of remembering people from the user of the device.

**Overview Diagram**

![Fig. 1. This hardware diagram outlines the peripheral connections and data flow of FASTR. The blue lines indicate inbound data (from the MCU’s perspective) and the black signify outbound data.](image-url)