# Team JFK

Team Composition: James Yost, Finn Sizer, Kacey Schulz*

Team JFK (Named such because the members names start with F, K, and J) will purchase a Raspberry Pi 4 and transform it into a Google Home device. The board will communicate with Google servers and, by extension, interact with several other internet connected devices. If the original task leaves us with extra time, we plan to implement custom actions on the device, such as controlling a slideshow presentation.

The user will interact with the device through a microphone, using their voice to activate the device with a wake-up phrase. The default for Google Home devices is either “Hey Google” or “Okay Google,” but we hope to implement a custom wake-up phrase if possible. The device will output in a variety of ways- it may respond by using a speaker to play a response, modifying the user’s calendar, calling their phone, and much more.

The board we will work with is a Raspberry Pi 4, sold by CanaKit on Amazon for $100. The device was selected for two reasons: First, we plan to use a lot of devices connected to the board: a microphone, a speaker, an LED, and possibly more. The board we selected has enough ports to connect all of our devices. Furthermore, we expect our device to require lots of RAM, so we specifically ordered the board with 4GB of RAM. The board is also OS loadable, satisfying all the requirements for the project.

We will need various software for this project. First, we’ll need an OS. Given that we’re using a Raspberry Pi, we will use Raspbian. Our primary programming language will be Python, but we may use other languages if they become more useful. In order to communicate with Google, we’ll be using the Google Assistant API Manager. All of these are free, and can be downloaded in various locations.

After building the device, we may evaluate the device for cost effectiveness or power usage against a real Google Home and Google Home Mini. We may also attempt to evaluate our implementation for security flaws, however many security problems will be a result of using the Google API instead of due to our own implementation.