

Client Discovery Interview - AC Bluetooth Switch

Jorian Bruslind

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1 Overview

For our project, our client was Westley Wurscher. Our client did not have any additional requirements outside of the defined project requirements as described on canvas. These requirements included general constraints (that were relevant to all projects) such as the final product using a student designed printed circuit board (PCB), the final product will not contain a breadboard, the final product will be ruggedly enclosed in a container, and finally, any wire connections to the outside of the enclosure will use connectors. In addition we (the team) gave 4 examples of additional engineering requirements that could be included in the final design. These were: Having the system be waterproof up to IP66 rated, the system will have a "demo" mode which is able to display all capabilities clearly at the push of a button, the system will be able to use Wifi standards and an HTML interface (in addition to Bluetooth), and the system will be voiced activated on android devices through the Google voice api. Of the 4 presented, the client chose the Wifi integration and waterproof options.

2 Client questions

There were a few clarifications needed for the final design to be properly constructed. We asked if there were any restrictions on controlling devices or microcontroller. For example, were we limited to the Atmega series of microcontroller found on the Arduino system or could we use a different system. The client stated that we were able to use whatever microcontroller we saw fit. We also asked if the "rugged" enclosure (as described above) could be replaced by an epoxy resin around the device/system. The client stated that this would be an acceptable replacement/adjustment. These were the only questions that were asked of the client during the meeting.

3 Possible approach

From our dialogue with our client, we have come up with a rudimentary system that would satisfy the client requirements. Our team intends to use the ESP32S

Espressif microcontroller to control our system. This microcontroller has built in Wifi/Bluetooth capabilities and is programmable through the Arduino IDE. This would satisfy the requirement for Wifi/Bluetooth connection. We also plan on using an O-ring sealed enclosure to meet the "rugged" enclosure and the IP66 rated requirements. We will design a PCB using the CircuitMaker software which will satisfy the custom PCB requirement.