Tappy: The automated kegerator

Goal

The goal of Tappy is to create a flexible module that can be attached to any standard home kegerator and convert it to a smart kegerator. The app monitors kegerator usage and provides statistics to users. The attachment prevents beer pouring except when given permission through the app and assists with monitoring of the kegerator.

Technology

- Swift for IOS app development
- Mosquito to connect the app to the chips
- Raspberry Pis and a Pi Hat to manage all mechanical components
- Python to write firmware for the Pi
- Servo to move the arm that pushes the tap forward and retracts it

Achievements

The Tappy machine can be controlled entirely through the IOS app. We prototyped and designed most of our parts and printed them using a 3D printer. Refer to the rendering on this poster for a detailed breakdown of the mechanical components off this device.

Challenges

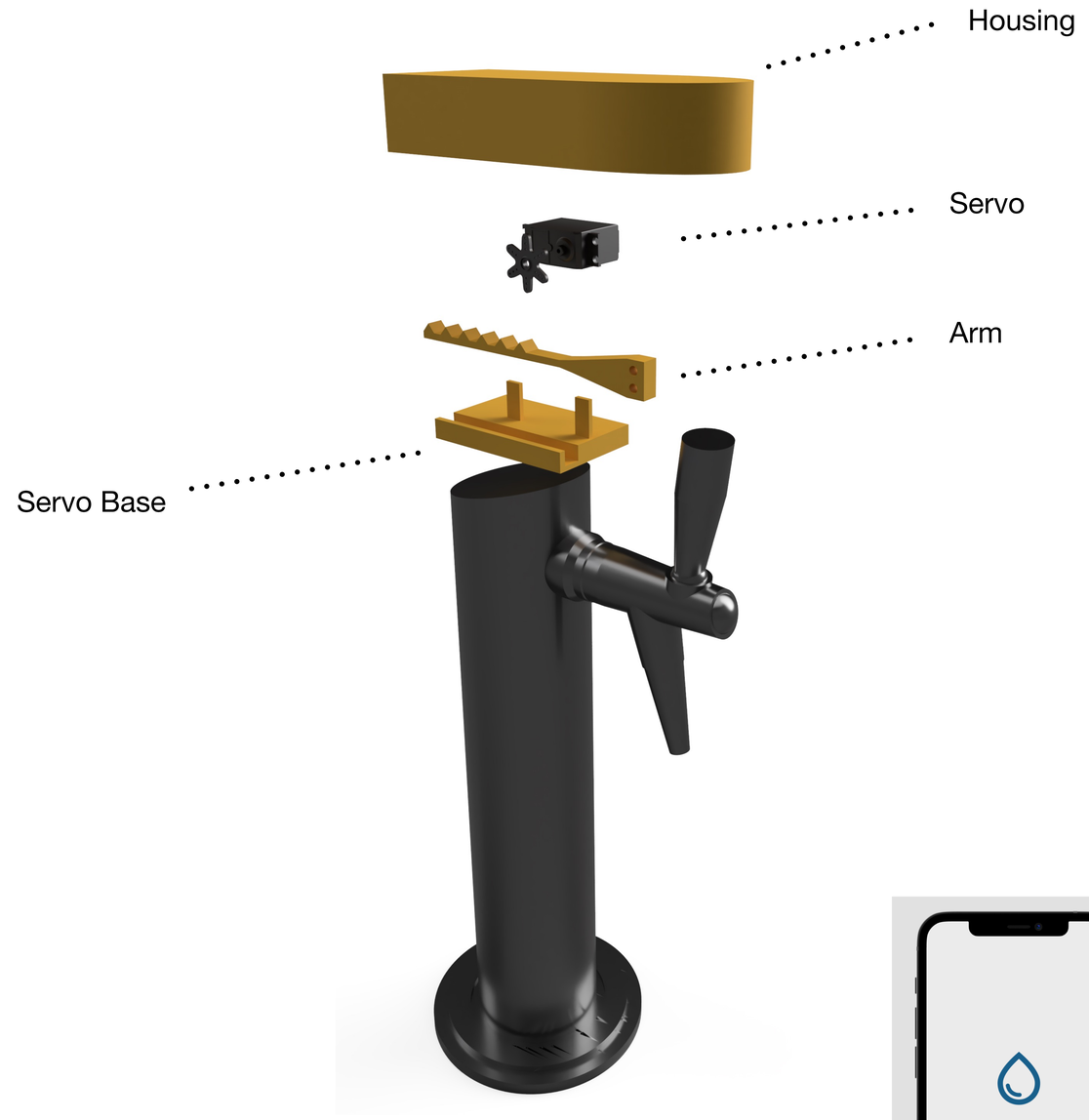
- Learning Swift and building an IOS app from scratch
- Designing and redesigning the physical components
- Designing the electronic system from the Raspberry Pi to the servo
- Communication between iPhone and raspberry pi with MQTT

How it works

The communication between the Phone and Raspberry Pi is facilitated with MQTT. MQTT is a publish-subscribe communication method through a wireless connection and a Broker. In our case, we used a second raspberry pi as a broker running “Mosquitto”, a MQTT Broker application for raspberry pi. We used moscapsule with swift to publish messages to the broker. The tap pi would then subscribe to the topics and recieve messages that were published, allowing for real-time communication between the tap pi and an iPhone.

Fun Statistics

- Including prototypes, we spent 59.8 hours printing parts
- We went through about 600 ounces of beer in testing the pour alone (about 50 cans of beer!)
- The most prototyped piece was the arm at version 5 being our final print



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