

## Abstract

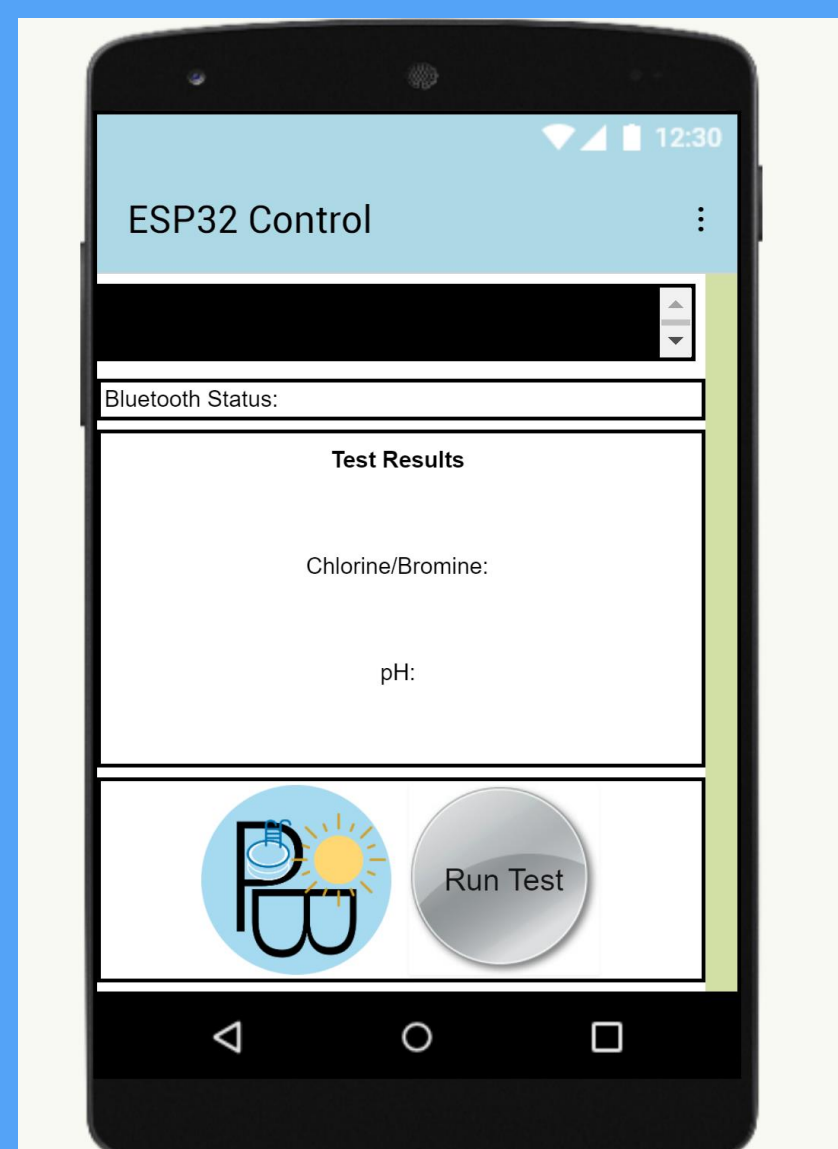
Pool Buddy is a device that will aid pool owners in the upkeep of their pools. It will do this by reading back the most common chemical levels a pool owner needs. They are pH, chlorine, and bromine. By taking the guess work and time out of the pool owner's hand they can go back to using their pool more than trying to maintain it.

## Need for Product

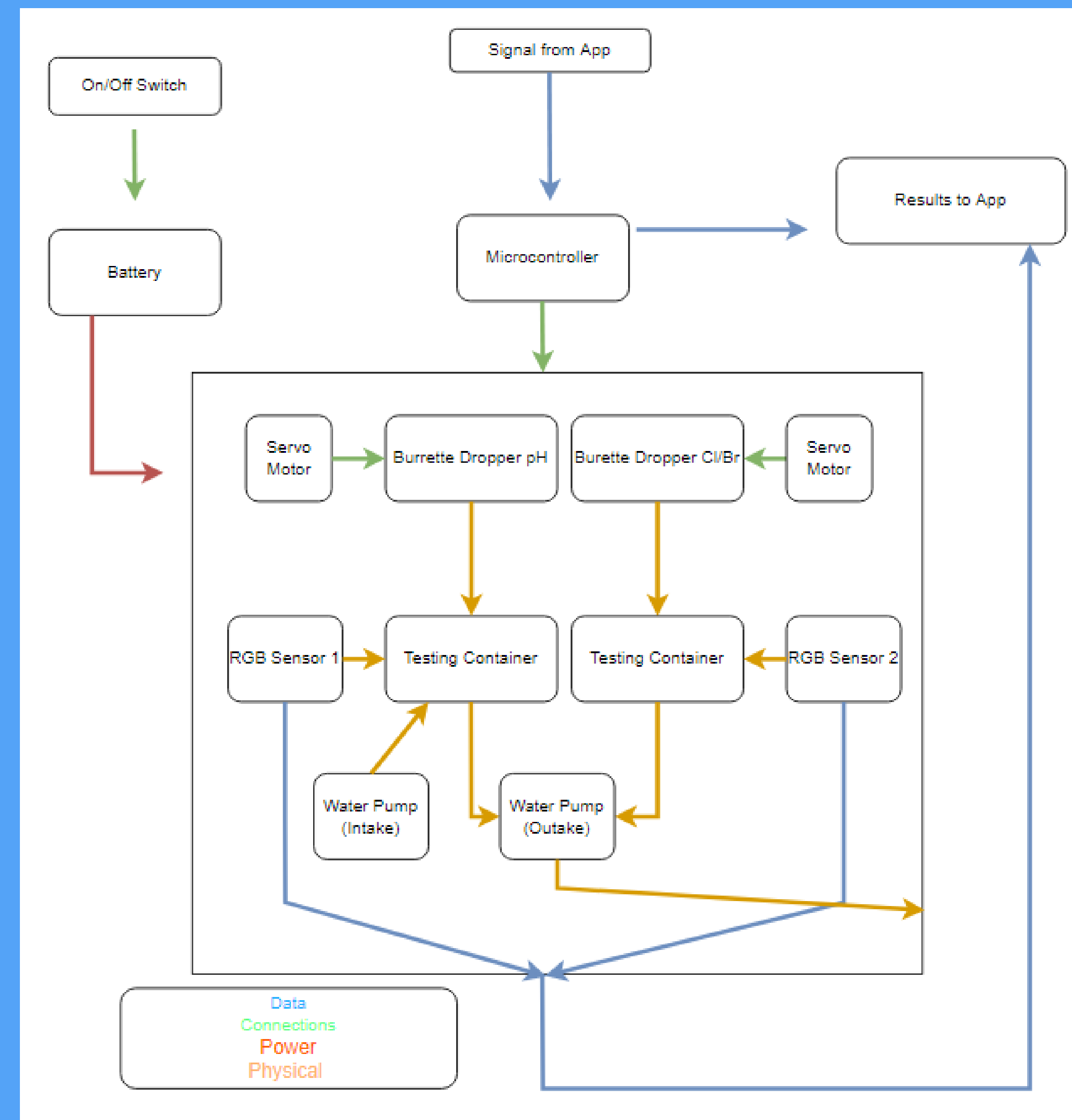
Pool owners have a wide variety of methods to choose from when it comes to maintaining their pools. Several different chemicals needed to be checked to ensure safe swimming conditions and cleanliness of the water. Some owners choose to hire a pool cleaning service to maintain their pools for them because of how much of an inconvenience it is. Pool maintenance is time consuming and costly. Pool owners tend to struggle to read the results and make proper adjustments.

## Design Concept

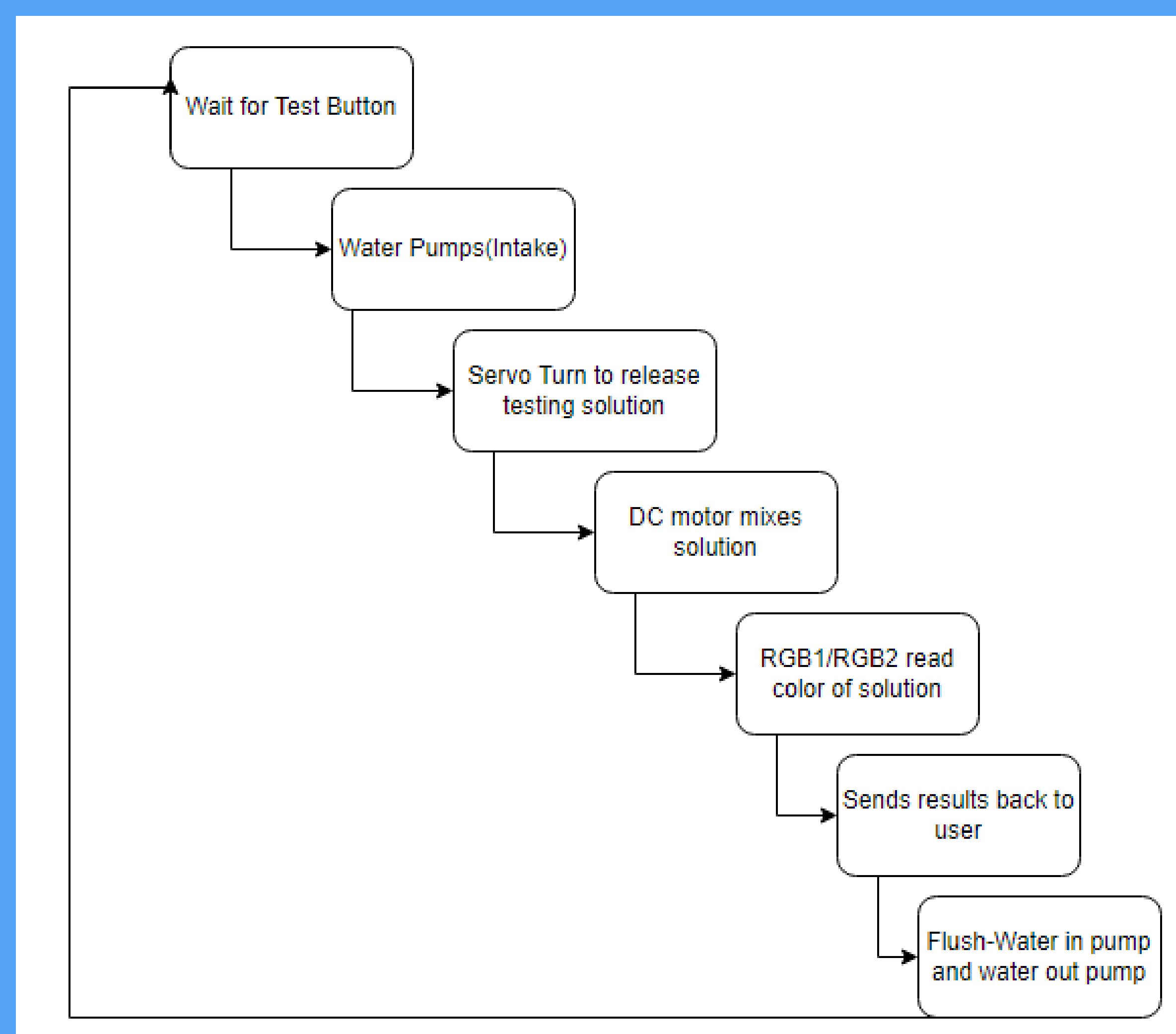
This will be a device that can help pool owners in the upkeep of their pools. It will do this by first taking in a sample of water from the pool. The device will then test the pH, chlorine and bromine of the water by releasing testing solution into it. A RGB color sensor will detect the color and send the corresponding chemicals levels back to the user via app.



## Functional Block Diagram



## Software Flow Diagram



## Components

Main Components:

- ESP32 WROOM
- MG996R Digital Servo Motors
- TCS34725 RGB Sensor
- DC Motor
- Burette Dropper
- Peristaltic Water Pumps

## Future Considerations

- Reduce size of product
- Include a debris catcher
- Release chemicals into water to automatically adjust chemical levels of the pool
- Detect temperature of the pool
- Implement a salt-water pool monitoring system

## Glossary

- Ph** : Measure of how acidic/basic a liquid is
- Microcontroller** : A chip that has most of the support on the same chip as the CPU used for a dedicated application
- Servo Motor** : Electrical device that is precise in rotation
- Chlorine**: A chemical sanitizer to maintain pool's cleanliness and safety
- Bromine**: A sanitizer, oxidizer, and algicide that is used in swimming pools

## Acknowledgement

*We would also like to recognize the UTSA Makerspace and UTSA ECE department faculty and staff for providing the resources, instruction and support related to this project.*

Making pool maintenance a summer breeze!