IOT BASED UNMANNED SURFACE VEHICLE FOR WATER SAMPLING AND WATER QUALITY APPLICATION

RESEARCHER: HARIS FAISAL BIN SHAHARUDDIN
SUPERVISOR: DR. ZAINAH BT MD ZAIN
FACULTY OF ELECTRICAL AND ELECTRONIC ENGINEERING TECHNOLOGY
UNIVERSITY MALAYSIA PAHANG
CONTACT: haris.faisal.shaharuddin@gmail.com / +60197622090

Introduction

Water bodies around the world are mostly left unmonitored. Moreover, there are lot of risk and cost involved to monitor the water quality manually. With using a set of sensors on a remotely control water vehicle the risk and cost can be reduced.

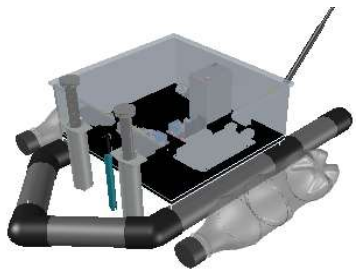
Objective

- **To develop a low-cost USV that can collect samples of water and update sensors data to online database.**
- **To design mobile application for controlling the USV and show the collected data.**

State of the Art/ Methods

Mobile App

Via Wi-Fi

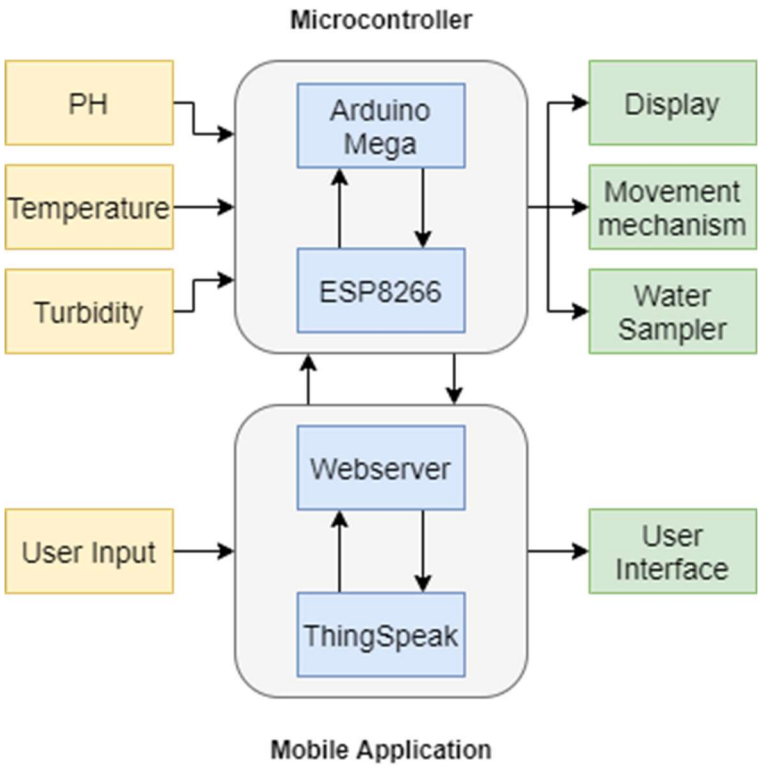


USV

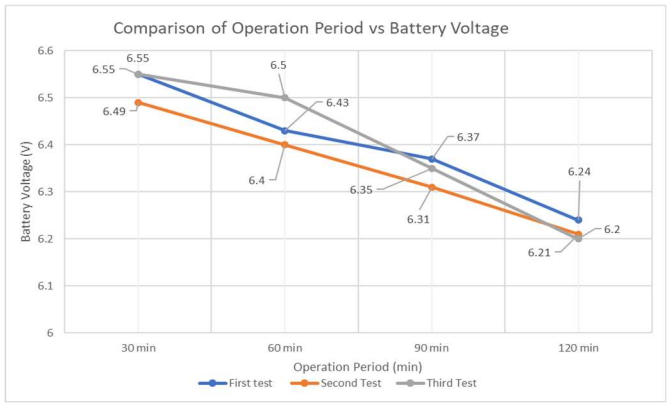
Novelty

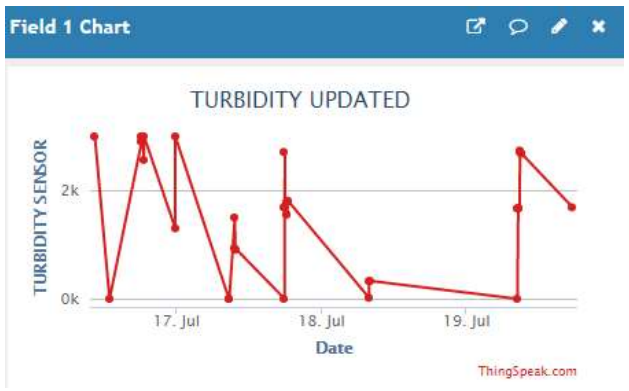
- **Low-cost hardware**
- **Original GUI made with MIT APP INVENTOR**
- **Mobile app use to control and monitor the USV**
- **Online database (ThingSpeak)**

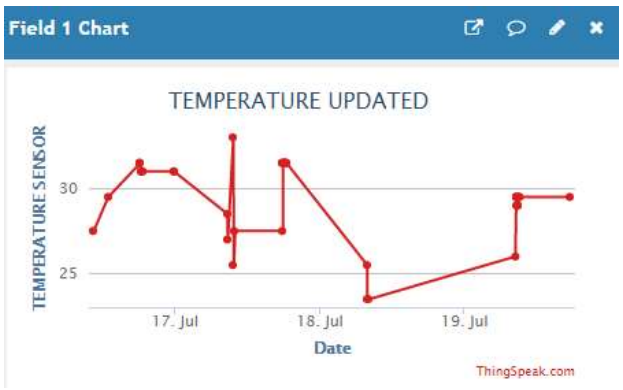
Block Diagram



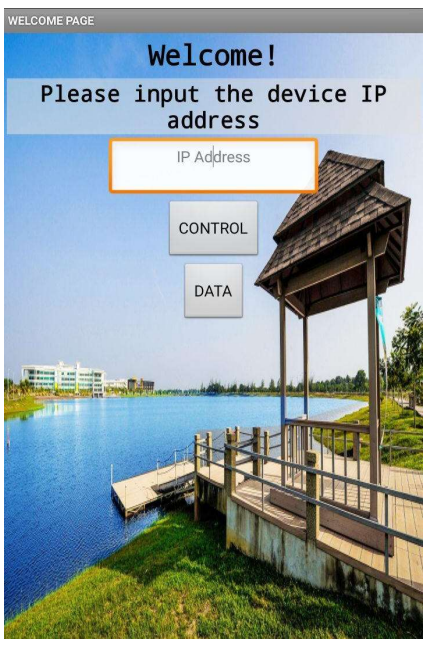
Collected Data

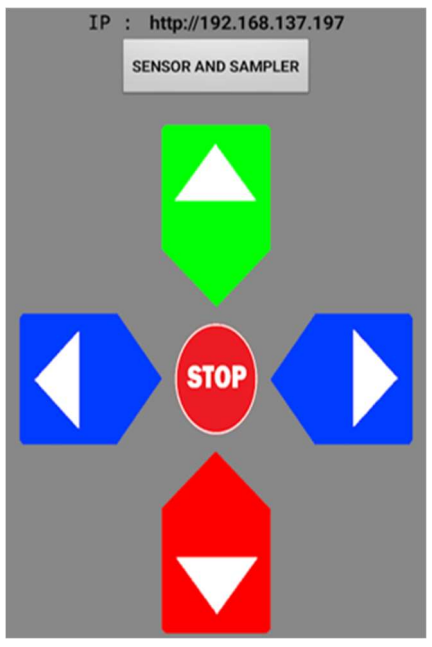


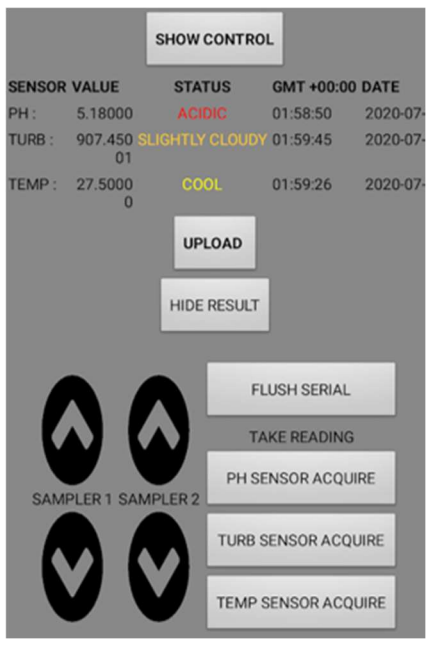


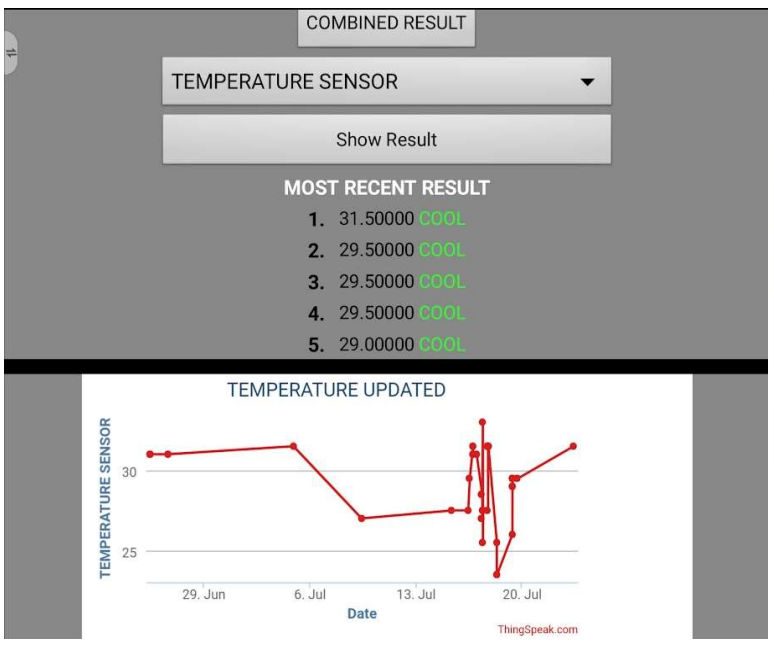


Mobile App Interface









Future Work

There is some improvement can be made

- **Add camera to improve visibility**
- **Swap with higher capacity battery**
- **Change to higher speed motor**
- **Swap to bigger propeller**

Limitation

- **Max 100m distance line of sight**
- **Max one hour of run time**
- **Only Android Device**

Achievement

2020 IEEE Malaysia FYP Competition

First Place Winner under IEEE Oceanic Engineering Society, (IEEE OES Category), organized by IEEE Malaysia.