

CREST CACHe : Low Cost Scientific Instruments

Goals

Develop Low Cost Scientific Instruments and solutions for on field water monitoring.

Research Methodology

Collaborating with Professors and students to identify an issue, form a group to solve the issue, research solutions, and prototype.

Results

End stages for one project (water wand). Mid way of integration of the spindle integration

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Water Wand

Development of a sensor kit utilizing Arduino platform that can be given to community scientist to gather information from King Tide inundation around the city of Miami. The sensor kit replaces the current kit, that has highly subjective methods of measuring samples gathered on site, which community scientist are not trained for. The sensor kit comes in the form of a stick and placed in the inundated area. It measures temperature, conductivity, depth, salinity, and GPS coordinates. The team developed a phone application that receives a blue-tooth transmission from the device and uploads the information to a data repository.



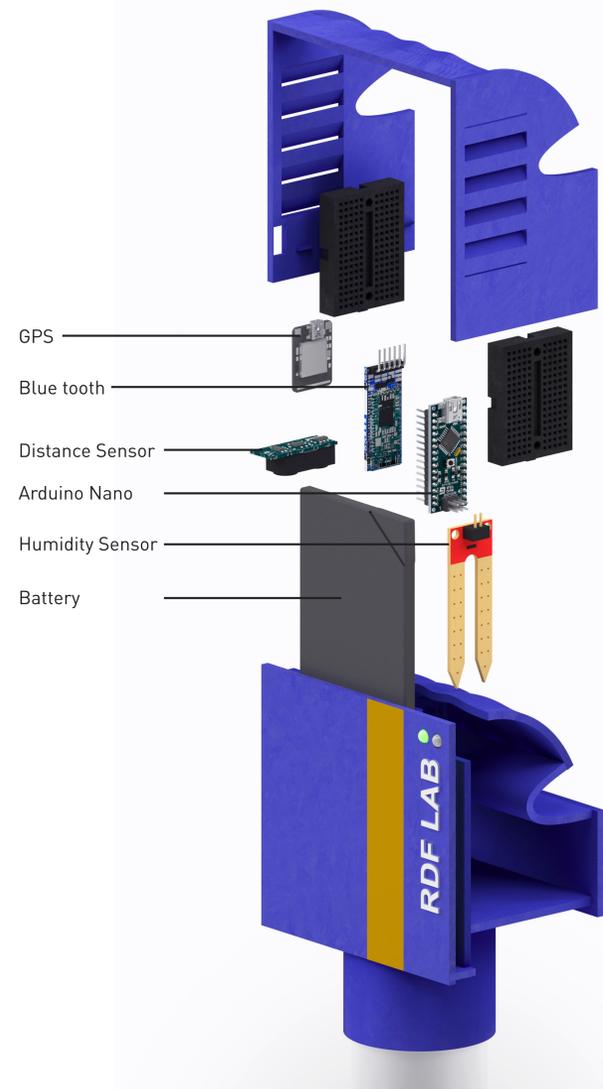
First test of the water wand during a King Tide event. UI for application developed in MIT App inventor



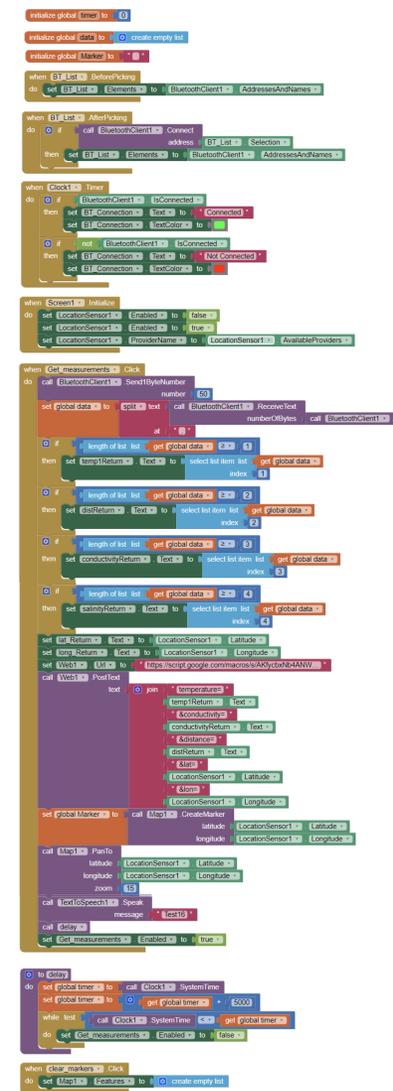
Calibration of conductivity sensor in different saline solutions. Presentation board for first community event.



King Tide Community event presentation of the water wand.



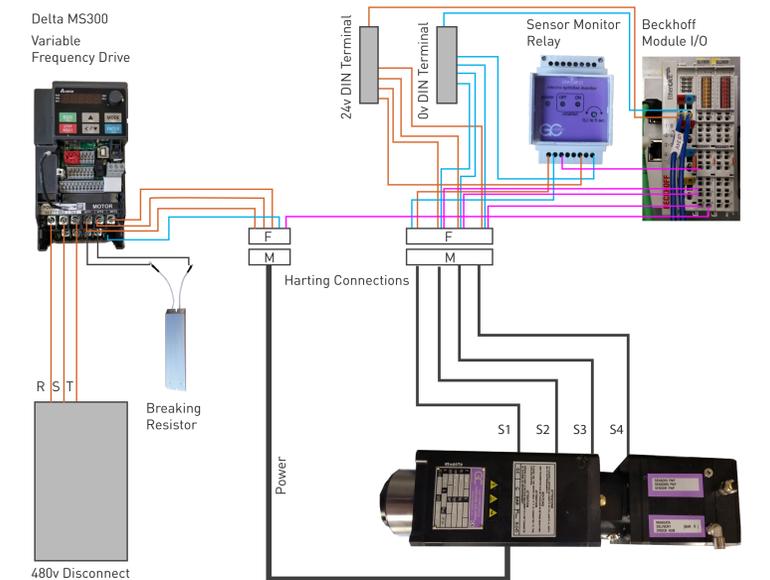
Rendering of first prototype and it's components



Code in MIT app inventor for the phone application for the water wand.

Spindle Integration

Integration of the Spindle to the KUKA KR 30 HA will provide the platform to digitally fabricate many different designs. This includes fabrication of things such as costly buoy sensor systems.



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