

Sensor Development

Sensor Development Team

The primary goal of this team is to build sensors to assist the wastewater subteams. The first semester of the Sensor Development team focused on building a biogas sensor and a fluidized bed solids concentration sensor. The next semester, the team modified the fluidized bed solids concentration sensor to fit the needs of the High Rate Sedimentation (HRS) team. The team also designed and built a submersible concentration sensor to measure the height of the sludge blanket.

Fall 2017

Spring 2017

The Sensor Development Team modified the solids concentrator sensor for the HRS team recirculators. The primary goal this semester is to determine an accurate calibration curve of clay concentrations in HRS recirculators using the existing photosensor LED light. The calibration curve was created by testing the photosensor with various concentrations of clay. Then, the calibration curve to convert voltage readings to concentration. Next, a submersible concentration sensor was designed, which will be used to measure the height of the sludge blanket in the sedimentation tank. The design of the submersible sensor consisted of a photometer attached to the end of a 2 m marked pipe. As the sensor is lowered into the sedimentation tank, the photometer measures the voltage. When the photometer reads the dark voltage, due to the high concentration of the sludge blanket, the height of the sludge blanket can be read from the markings on the pipe. Fabrication of the submersible sensor was completed this semester, and the next steps for the Sensor Development subteam are to test the sensor and optimize it for portability.

Fall 2016

The Sensor Development Team is a new team for the Fall 2016 semester. The team was created in response to the needs of the UASB and AFB teams. The primary goals of this team were to develop a gas measurement sensor that can be used in AguaClara wastewater subteams, as well as design and build a fluidized bed solids concentrator sensor that can be used by other AguaClara subteams. This semester, we finalized a method of gas measurement, programmed settings in ProCoDa to automate the systems, and built the next generation of the measurement system. For the fluidized bed solids concentrator sensor, we built and calibrated a sensor that detects LED light shining through a clear PVC pipe containing granules to output granule concentrations in ProCoDa for the AFB team. This sensor can be modified for other subteams, as needed.

Current & Future Research

Current Team Members Fall 2017

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Former Team Members Fall 2016
















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Team Documents

	Challenges	Tasks	Symposium	Presentation	Final Report
Fall '16					 
Spring '17					 
Fall '17					

Past Research

None.

