

## 7<sup>th</sup> Annual Cal Poly Pomona Student RSCA Conference March 1, 2019 University Library (Building 15) and Building 9 Oral Presentations from 9:00 am to 3:15 pm Bronco Student Center (Building 35) Poster & Creative Works Showcase - Ursa Major from 1:30 to 3:00 pm

Conference Awards Reception - Ursa Minor from 3:00 to 4:15 pm

Project Title: Embedded Control System for Decentralized Wastewater Treatment

Presenter Names: Ibrahim Naffaa, Omar Naffaa, Olusegun Bamgbose

Faculty Mentor(s): Tamer Omar

Time: 1:00 - 3:00

Presentation Type: Poster and Creative Works Showcase

Session Name: 15 Poster and Creative Works Showcase

Location: BSC Ursa Major

## Abstract:

The Decentralized Wastewater Treatment System (DWTS) consists of a variety of water treatment techniques for homes, businesses and industrial facilities independent of power grids or water transport systems. The system can treat both greywater and brackish groundwater- available even in some regions experiencing drought- and therefore can be deployed for single household use, as well as serve disadvantaged communities and remote regions lacking clean water infrastructure. DWTS can do this by being self-sustaining, and mobile, making use of renewable energy sources, solar power in this case, and by being robust, efficient, fault tolerant, and easy to operate. To accomplish this, we propose an embedded control system for DWTS that makes use of embedded sensors and an embedded microcontroller for automation, with the design of the system split into three stages: Data Acquisition, Fault Tolerance, Efficiency Analytics.