

Faculty of Engineering

Summer Research Program 2022-2023

Project Title: Innovative and low-cost auto-sampler for SARS-CoV-2 in wastewater surveillance program

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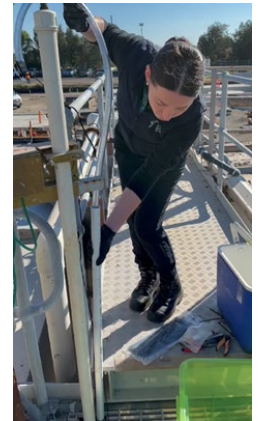
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Objective

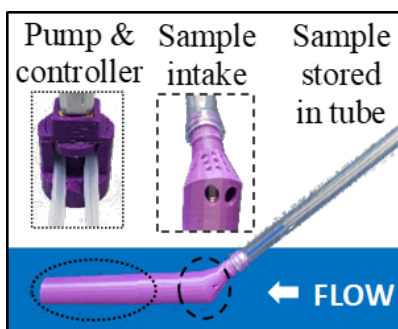
We collaborate with the Victorian Department of Health to conduct wastewater sampling and monitoring to identify the undetected cases who are infected with COVID-19, because the shedding of SARS-CoV-2 virus from infected human bodies can be found in wastewater. This early warning system to potential outbreaks help protecting the communities. An innovative and low-cost auto-sampler named MAD-AS has been designed as an alternative to other traditional wastewater sampling methods, that are unsuitable for the wastewater surveillance program due to various limitations.



Project Details

The small and reusable MAD-AS uses 3D-printed parts and an Arduino-operated micro-control system, it can collect and store wastewater sample in small volumes and high frequency. The MAD-AS can be deployed to the sewage treatment plants or upstream sewer network for a flexible duration (such as 24 hours). After the retrieval, the collected sample will be processed and analysed by Monash EPHM Lab. Ongoing and wide-spread wastewater sampling will provide valuable information on the COVID-19 situation within certain geographical areas.

Student(s) have the opportunity to be involved in different processes of the development of MAD-AS auto-sampler, such as the design validation and improvement, device construction and calibration, field deployment, lab analysis and interpretation.



Prerequisites

Basic programming skills (e.g. MATLAB and Arduino etc.)

Additional Information

Students who work on this project may be involved in both lab work and field work.