

## Environmental Research, Technology Demonstration and Conference Project

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| <b>ECF Project:</b>                       | ECF 2022-13  |
| <b>Project Title:</b>                     | Environment and Conservation Fund - Ultra-compact drone-based VOC sampling system for vertical profile measurements  |
| <b>Principal Investigator:</b>            | Dr Gu Dasa, Division of Environment and Sustainability, The Hong Kong University of Science and Technology   |
| <b>Total Approved Grant:</b>              | \$494,540  |
| <b>Duration:</b>                          | 1/10/2023 to 30/9/2025   |
| <b>Project Status/Remarks:</b>            | On-going   |
| <b>Project Scope:</b>                     | The proposed project aims to develop and demonstrate a novel portable volatile organic compound (VOC) canister sampling system based on timer or concentration threshold of ozone or total volatile organic compound (TVOC) concentration from real-time monitoring. Both laboratory and field pilot tests will be conducted in the study to evaluate the feasibility and applications of the system for flexible and efficient VOC canister sampling in the field during ozone episodes or during TVOC peaks around the sources, such as near landfill emissions. Combined with the state-of-the-art VOC analysis method, it will also provide a useful tool for research on the ozone formation mechanisms by automatic outdoor sampling network to enhance the spatial and temporal resolution of current VOC sampling monitoring approaches for effective source apportionment and identification. Upon the completion of data analysis, the project team expects to develop a general protocol for using the smart canister samplers for different sampling scenarios and expects the novel sampling tool can effectively and efficiently assist in a better understanding of the ozone formation mechanisms. |
| <b>Summary of the Findings/ Outcomes:</b> | To be available upon completion of the project   |