Project 2: Disinfect – Visible Light Disinfection by the Middlesex University of Mauritius

Start date: 22nd June 2020

Completion date: 13th January 2021

Output of project

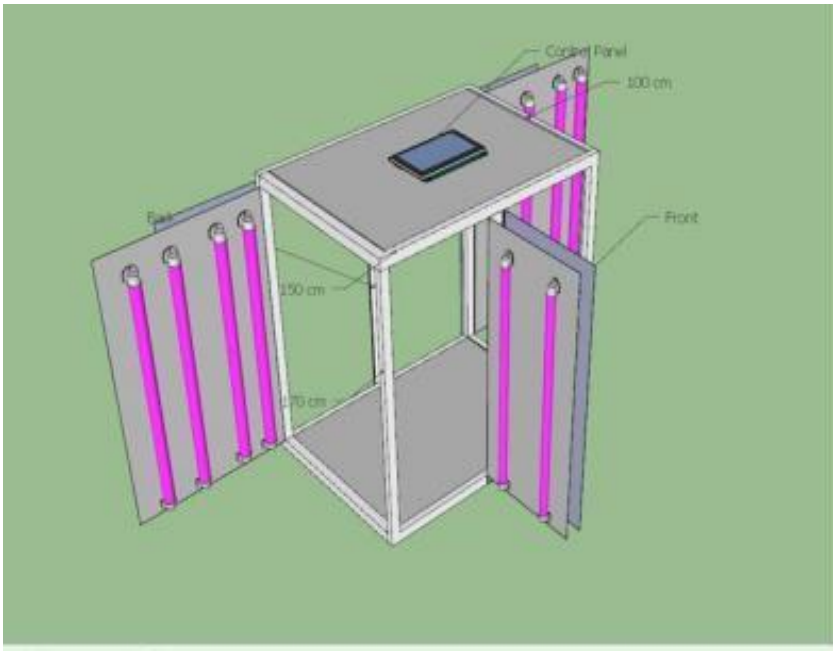
The project involved the development of a multi-purpose disinfectant chamber using UV- light that can be used to disinfect personal items, rooms and spaces. UV-C is powerful against bacteria and viruses, and can be equally very harmful to humans if there is any kind of exposure or misapplication. Therefore, the chamber makes use of visible light at 405nm, a wavelength which has recently been pitched to have virucidal properties and is safe in terms of human exposure.

The prototype multi-purpose disinfection unit has 2 light disinfection modes at 405nm which are:

1. Chamber-mode to disinfect personal items, and
2. Room-mode to disinfect surfaces in a room.

This invention can be used for disinfection of items while being safe for humans.

HNS Light Disinfection Chamber with standard door hinge mechanisms:



HINS Light Disinfection Chamber with standard door hinge mechanisms

— The unit has 6 doors which when oriented outwards give full room coverage, otherwise can remain closed to give internal disinfection for items within the chamber

— Uses 405nm HINS light rather than UV-C

— 405nm is visible light and safe





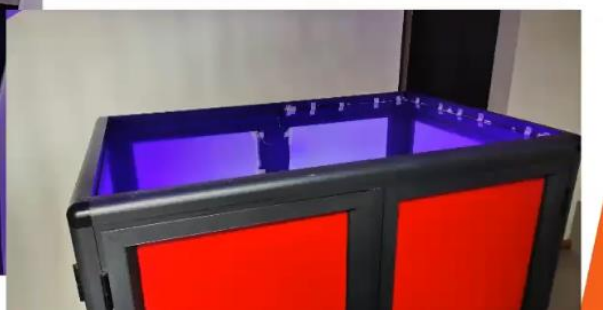


405 nm Concept 2

— Placement of strips are staggered on each door to give maximum coverage







APPLICATIONS & FUTURE WORK

— Can be used in hotels, shops, offices, homes, safely in presence of people

— Does take longer than UV-C light which is a rapid solution

— Ongoing studies show promise against SARS-CoV2 with visible light disinfection techniques

— Potentially future work includes, testing effectiveness in lab environment, adding autonomy, wireless controls, distributing the LEDs more widely

