**BREEZE Read Me – Project Introduction**

This is an open source ventilator designed for the Code Life Ventilator Challenge. A team of undergraduate university students designed this mostly 3D printable, easy to produce ventilator in just over a week. To provide airflow and pressure a blower fan from a mattress inflator is used powered by a brushless DC motor. Using 3D printed components, many parts can be combined together reducing the part count making assembly simpler. Additionally, the parts can be easily modified further improving the machine.

Due to its small size and light weight, the ventilator is easily transported and can be set anywhere it would be needed. An internal battery allows for the ventilator to remain operational for a minimum of 20 minutes in the event of a power failure. The machine can also be run off a car battery for approximately 8 hours and can be swapped at any time without interrupting the ventilator.

The smooth acrylic enclosure and touch display allow for easy cleaning of the machine. The robust aluminum extrusion internal structure keeps the essential components and electronics of the machine safe from drops and other impacts.

A blower fan is used to provide flow as opposed to an automated Ambubag or other form of bag squishing ventilator as the reciprocating motion and delicate bag do not work for the long term use this machine is expected to complete.

The screen used in the design is a seven-inch touch LCD which allows for a simple easy to use interface. All important information is displayed, and errors are logged and appear as notifications. With no knobs or buttons the screen and machine is easy to disinfect and clean with a disinfectant wipe. Additionally the entire display works with gloves on which is very important given where this machine will be used.

In this folder an assembly of the current design along with the subassemblies and other related documents can be found.