RE-Inventilator Project blog: day 14, 4/1/20

Hi Everyone,

We are currently on our 14th day of developing a ventilator that can effectively save lives and make an impact on the COVID 19 Pandemic. Thanks again for all the help, questions and valuable insights.

On Wednesday we accomplished a lot, purchasing the rest of our sensor components, refurbishing donated CPAPs (we have around 25 units in house or incoming), and developing software. We also purchased a Fluke Ventilator measurement system (used, of course). We now have the entire suite of necessary equipment for testing ventilators.

With our mechanical team we also began laying out our pneumatic system with the hoses, valves and sensors. The sensors are such low cost, especially those with the I2C interfaces, and they are so easy to integrate that we are changing our minds on the use of sensors, especially if they are available. The trick is to use components that are not traditionally in the medical equipment supply chain.

Today was also a day of epiphanies. One of our critical needs is for what is called *flow reducers* that are used for differential pressure measurements. We haven't had much luck finding them commercially, as most companies injection mold their own. Our first epiphany is that we work with a very good 3D printing team and they are coming by tomorrow to discuss making these parts.

The second and more important epiphany is finally really beginning to understand what we are trying to accomplish and how our approach is substantially different from what is being attempted elsewhere. I call this approach the Software Defined Ventilator. Attached to this blog post is a 3 page white paper describing the concept.

As most of you probably have been notified, we have set up a Go Fund Me page to receive donations. These funds will mostly go to buying parts and equipment, and paying for some EE and software development time. Anything you can do here would be appreciated.

The Colorado Springs Gazette is going to be doing a story on our efforts and hopefully the wires will pick it up and we'll have more attention.

The greatest need at this time is to collaborate with a group that can test our completed prototype. Perhaps a Med School or equivalent.

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