

MedECC

Telemedicine in the modern world



Problem

Inspired by COVID-19 pandemic.

Hardware can be mass produced.

Clinical knowledge cannot.

Inefficient monitoring of patients.



Solution - MedECC

Specialists can see more patients in less time.

Doctors can safely monitor patients.

Better scaling of personnel resources.

Preserve PPE

Save time, save lives.



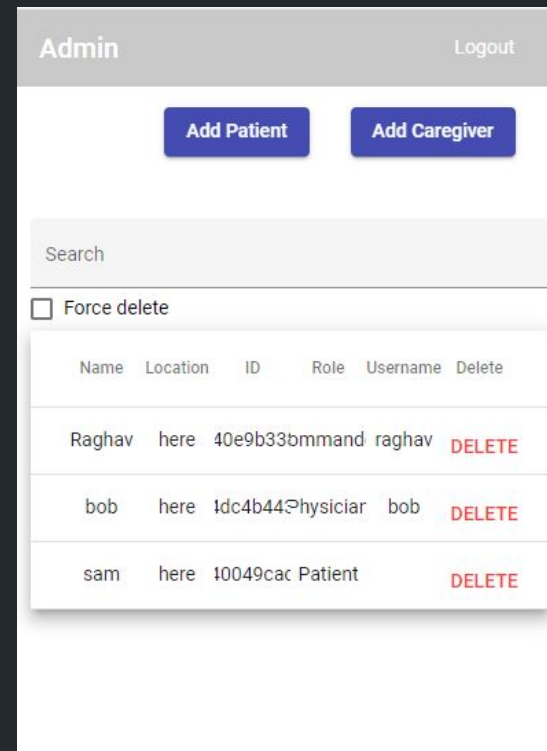
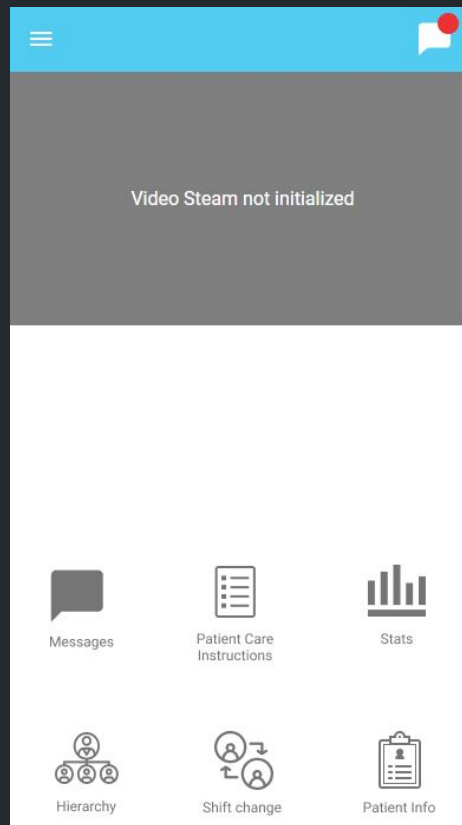
UI/UX Group Objectives

Patient and staff management

Redesign Patient Info screen for better UX

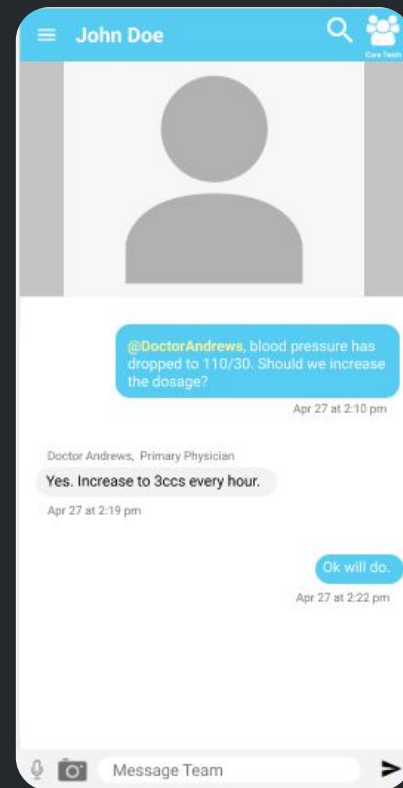
Clean up Patient List screen

Stable product to be tested in efficacy study



UI/UX Group Progress

- Settling on UX design updates
- Planning implementation tasks
- Comprehensive bug fixes and usability improvements
- Chat improvements and image previews
- Real time data updates

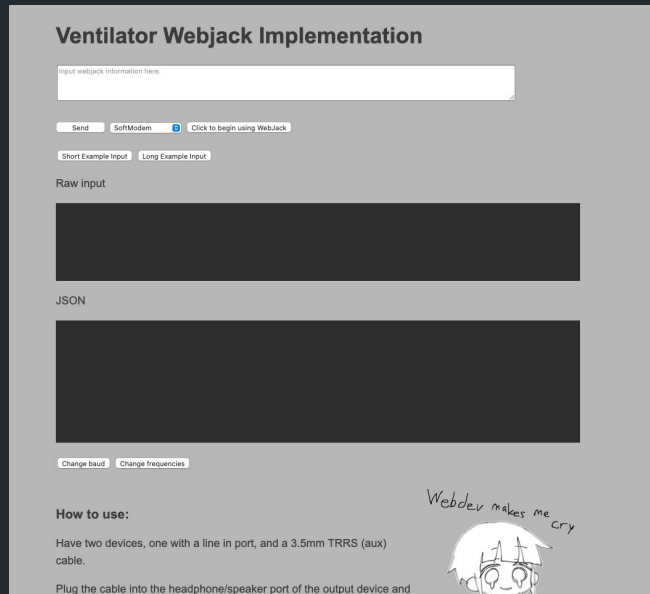


Modem Group Objectives

- Main objective: A working softmodem with
RX(reception) and TX(transmission) capabilities
- 1st deliverable: An efficient and robust TX protocol
- 2nd deliverable: An efficient decoding algorithm
(RX)

Modem Group Accomplishments

- Oscilloscope confirmed that the high and low frequencies are within a tolerable range!
- We have a working (and updated) webjack website which can communicate with the remote ventilator!
- The communication between the mobile device and remote ventilator is as expected!
- We need to implement certain encoding and decoding functions!

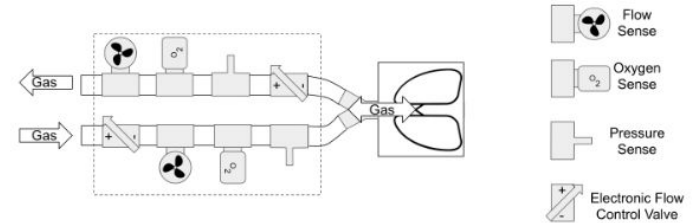


Control Group Objectives

- Design control algorithm for PCV (Pressure Control Ventilation)
- Test the workflow of the PCV.

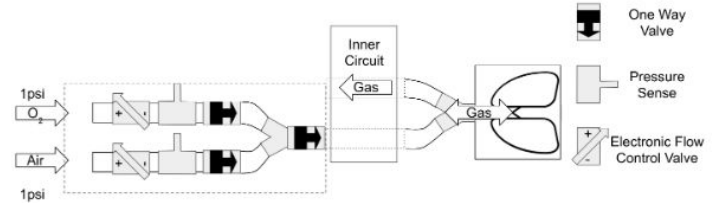
1 Pneumatic Diagram

1.1 Inner Circuit



The two flow control valves will both be one-way. The lower tube is the inhalation tube and the upper tube is the exhalation tube.

1.2 Outer Circuit



Control Group Progress

- Design of the PCV control loop (complete);
- Simulation of control for ventilator on Matlab (complete);
- Control the valve (complete);
- Find and employ the desired pressure and flow sensor to system (in progress);
- Test the code for PCV control. (to do)

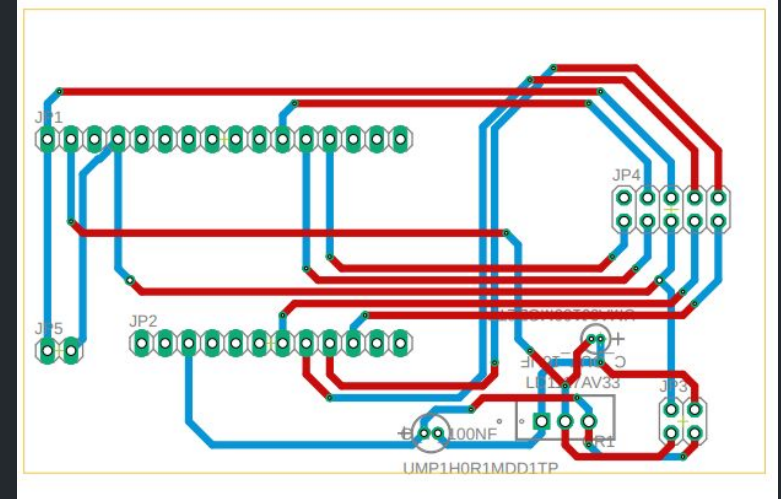
OS/Display Group Objectives

- Implement link between user display and system
- Create firmware and operating system
- Finalize display design and functionality
- Create Hardware necessary for OS
- Integrate OS with other groups



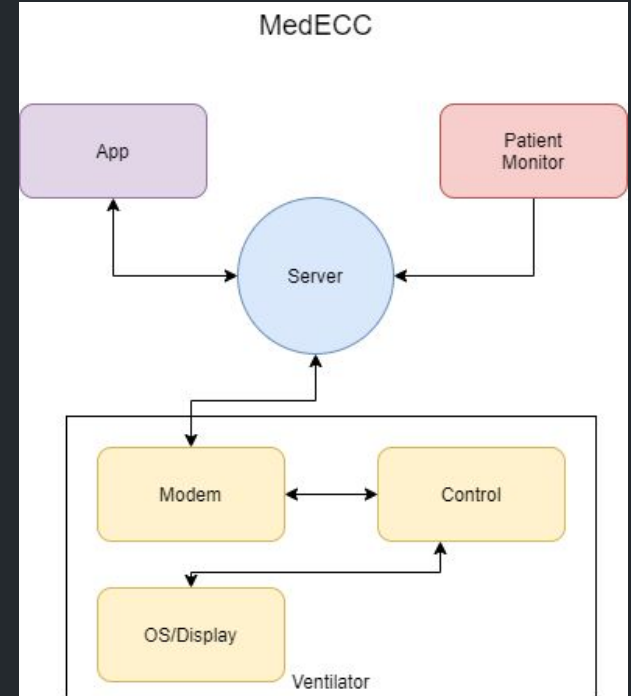
OS/Display Group Progress

- Finished main Display screen implementation and functionality
- Designed PCB for adapter board to connect display to Arduino and power display
- Working on testing for data structure



Final Product

- Functioning ventilator and communication stream
- Within human tolerances
- Integrate the components of the subgroups
- Send data to mobile device



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