Ventilator Critical System

This program presents a ventilator control system that monitors a patient's oxygen levels and provides breathing support. It operates in a continuous loop, monitoring vital parameters and making safety critical decisions to ensure patient safety; such as oxygen level, tidal volume, air pressure and expiratory rate. When parameters approach dangerous thresholds warnings are issued to medical staff, and alarm conditions are presented on the system output. Operations are first running at normal safe operation when within safe ranges, and the ventilator continues with normal operations. The system distinguishes between high priority alarms and medium priority alarms through the categorizing of warning and critical levels. If a critical status is reached, the program triggers an emergency shutdown of the ventilator, terminating the program. If safe and warning states are reaches, the program continues to operate, giving a warning notice if reaching a warning state, and giving the staff an option to continue operation given a critical state is not reached.