Siemens Centre of Excellence in Manufacturing
National Institute of Technology, Tiruchirappalli

Design and Development of an IoT based Smart Ventilator

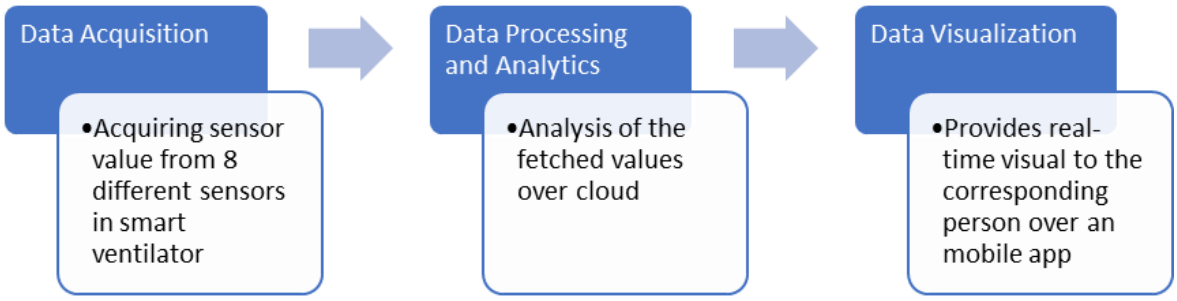
Overview

Coronavirus (COVID-19) is a deadly infectious virus that enters in to the lungs, making it harder to breathe, and causing the body's oxygen levels to drop. In the event of difficulty in breathing, ventilators are generally used to push air, with increased levels of oxygen, into the lungs. The ventilator also has a humidifier which adds heat and moisture to the medical air to match the patient's body temperature. There are several problems such as availability, cost-effectiveness, more workforce to monitor and manage. As a result, there is a push from Make-in-India for ventilators. In this scenario, it was proposed to develop a low-cost smart ventilator using IoT to improve better monitoring, management, reduce the workforce and social distancing of people. Considering the present need of large number of ventilators and the problems associated with the current type of ventilators, it is proposed to develop a smart ventilator which is IoT based enabling remote monitoring.

Advantages of Smart ventilators:

- To support breathing ailments caused to the patients.
- Remote monitoring.
- Real-time sensor data logging.
- Avoids patient from suffocation.
- Pressure flow control mechanism.
- Avoids air-borne transmission.
- Less requirement of staff nurses/doctors for continuous monitoring.

Implementation of IoT in ventilators



Team Members

NIT Trichy

Dr. M. Duraiselvam, CNC Labs, Siemens CoE, NIT, Trichy

Mr. Sangeeth, Instructor, IoT Lab, Siemens CoE

Sri SaiRam Engineering College, Chennai

Mr. Aravindakshan (Student)

Ms. Shalini Kannan (Student)

Ms. Anupriya E (Student)

Ms. Sripriya V (Student)

Ms. Priya K (Student)

Mr. Ajay T (Student)

Mr. Joybe J Mathew (Student)

Mr. Ravi Rajan (Student)

Dr. S. Sumathi (Mentor)

MIT Square, Bangalore

Mr. Arun Kumar, Head of Business Development

Ms. Bhuvaneshwari, Head of Product Sales

Dr. S. Mithileysh, Execution Director

Project Cost: Rs. 70,000

Project Duration: 3 Months