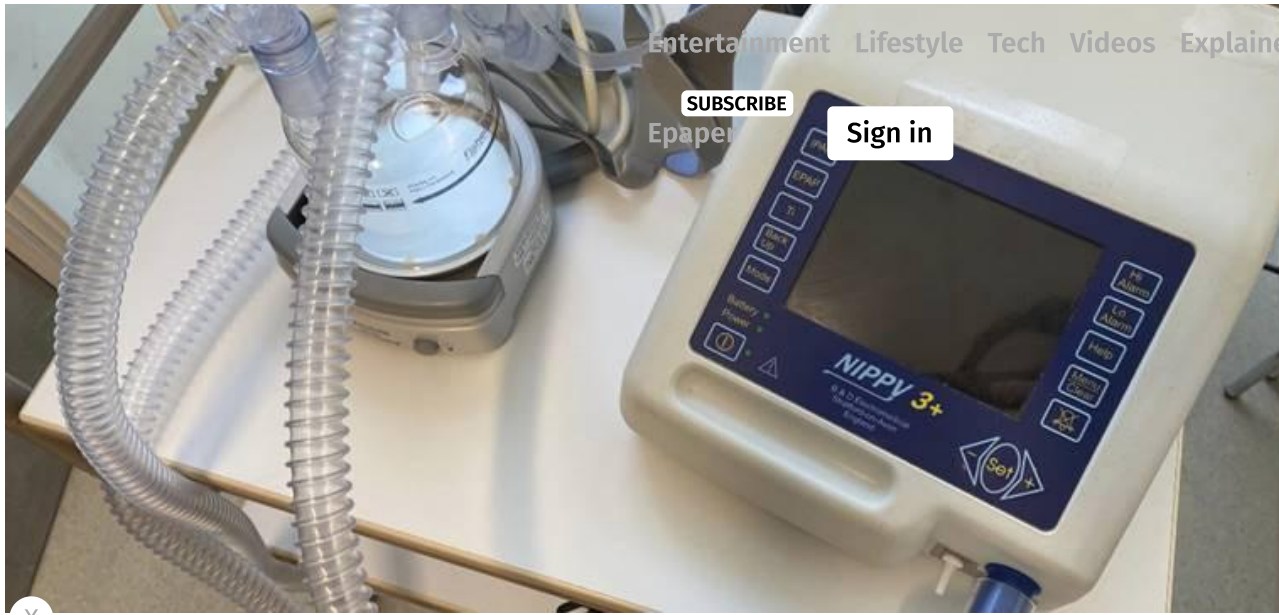


# Pune: IISER physicists design low-cost ventilator in 18 days

A group led by physicists Umakant Rapol and Sunil Nair said they were inspired by the Bharucha ventilator.

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Written by [Anjali Marar](#) | Pune | Published: May 4, 2020 12:32:27 am



Ventilator designs have been floating online since the outbreak of coronavirus, so manufacturing companies can enter mass production and meet the ever-growing demand. (Representational)

Two scientists from the Indian Institute of Science, Education and Research (IISER), Pune, have developed a low-cost ventilator in less than three weeks.

A group led by physicists Umakant Rapol and Sunil Nair said they were inspired by the Bharucha ventilator. However, they added, since patients diagnosed with [COVID-19](#) are stated to require the support of sophisticated ventilator systems, they decided to improvise.

Ventilator designs have been floating online since the outbreak of [coronavirus](#), so manufacturing companies can enter mass production and meet the ever-growing demand. The union government, too, released similar documents aimed at Indian manufacturers.

After studying many such designs, Rapol and Nair – along with Mohammad Naoman, Sainath Motlakunta, and the institute’s technical officer Nilesh Dumbre – finalised the hybrid design. The prototype is based on ventilator designs of the Mechanical Ventilator Milano (MVM), along with another from the University of Florida. Students have been remotely assisting in this project from Denmark and Canada, where they are pursuing higher studies.

The nationwide lockdown has made the project difficult for the IISER team, as they were left with limited resources and material to work with.

“We could not procure actual flow sensors and proportional valves,” Rapol, who is a trained quantum physicist, said. “These are crucial components for a ventilator. So we had to replace them with available material that performed similar functions.”

Pitched at anywhere between Rs 40,000 and Rs 50,000, the IISER prototype is not only a low-cost ventilator, but also comes with remote access. The team said that once mass manufacturing was taken up, it could further reduce costs significantly.

“For any sophisticated medical equipment to operate in the most user-friendly manner, a sound software setup is vital, and that is where our alumni contributed. The unit can be remotely monitored and controlled, even using a mobile phone,” Nair said.