



5 Solutions to covid 19 provided by Biomedical Engineers (Assignment-6)

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Roll no.- A018

SEMESTER-1

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1) Low-cost ventilator:- The whole World is greatly affected by the current COVID-19 pandemic caused due to emerging novel Coronavirus (SARS-CoV-2) which specifically attacks on the respiratory system and reduces oxygen carrying capacity to develop hypoxia/dyspnoea. The severely affected COVID-19 patients require ventilators to survive and to fulfil the need of oxygen.

To fight this problem ventilator is big source of hope, ventilator provide oxygen direct to lung or it is way to breath, if patient is not able to breath. In this, many number of college students from our country have worked towards aiding the medical staff and developed oven-sized, low-cost and portable ventilators which are expected to deliver 500-600 ml of air per breath and 15-18 breaths per minute, as specified for Covid-19 patients.

2) Manufacturing automatic mask machine:- To control the spread of covid 19 mask is one of the very important factor. Also to avoid importing masks from China or other countries and to ensure that we have a sufficient supply of N95 masks, engineering students created a machine that manufactures these masks. There has also been work done to ensure that machines used to make surgical masks are safe. Also The cost is expected to be 40-percent less than earlier.

3) Low Cost PPE Kit:- Every day, healthcare professionals rely on personal protective equipment to keep themselves and their patients safe from the spread of germs and infectious diseases. But, with the coronavirus pandemic spreading like wildfire, personal protective equipment (PPE) is more important than ever.

A group of Indian engineers has created low-cost PPE kits made of polyethylene that can be produced in any small to medium-scale industrial setting. The invention arrived at a critical juncture in the market, when PPE kits were in limited supply. Furthermore, the current kits were excessively expensive at the time and couldn't keep up with the expanding demand. The PPE kits built by the skilled team of engineers were constructed in such a way that they not only give the necessary protection but also cost less than INR 100.

4) **Pulse Oximeter:-**covid 19 mainly affect lungs due to which oxygen level start decreasing. So to detect oxygen saturation, a simple gadget pulse oximeter can be utilised in primary clinical care. In addition, a pulse oximeter can be used to monitor oxygen saturation in quarantined or hospitalised patients. As a result, in the COVID-19 pandemic, the pulse oximeter has proven a game-changer in detecting the oxygen need in patients. That oximeter is also developed or updated by biomedical engineers.

5) **Sanitiser tunnels:-**Sanitisation is direct way to kill corona virus. Moving around for our necessities is unavoidable, and we must visit a variety of locations such as hospitals, pet clinics, and so on. Indians have created a first-of-its-kind tunnel that is coated in polythene sheets and sanitises those who enter it with an organic fumigant rather than Sodium Hypochlorite. This helps to keep the infection from spreading in those areas via clothing, luggage, or other items carried by the person. It is also an non-invasive technology, means without contacting or touching it clean surface of body or anything.

