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Title	Pressure Swing Absorption Oxygen Concentrator equipped with Remote Monitoring Pulse oximeter.
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Abstract

The new COVID-19 disease was first identified in China at the end of 2019 and has spread rapidly all over the world. It has been projected that, by March 2021, the number of infections could reach 300 million cases and over two million deaths. One of the main implications for COVID-19 patients is pneumonia where the lung is infected, hence patients suffering from insufficient oxygen in the blood. As the number of COVID-19 cases have significantly increased, the demand for oxygen generators have also skyrocketed. This research concerns the design and construction of emergency low-cost oxygen concentrators used for mild COVID-19 symptoms, of which are forced to be treated at home. Our absorption-based oxygen concentrator uses zeolite packed in a sieve canister. An Oil-free compressor is then used to pump air in. Zeolite will absorb nitrogen from the air leaving oxygen free to travel towards the outlet. To evaluate the treatment, we have equipped the system with a pulse oximeter to measure the percent saturation oxygen, pulse rate and temperature. To prevent COVID-19 infections between patients and caretakers, we have designed an android application to remotely control the oxygen concentrator. Experiment has shown that our emergency low-cost oxygen concentrator can supply oxygen with an 85% purity rate.