HMS-Health Monitoring System for Home-Quarantined Covid-19 Patients

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During the COVID-19 pandemic, there was up to 3.6 million new reported cases and approximately 17 thousand deaths a day globally that are caused by COVID-19, according to WHO. However, most countries still lack of an adequate healthcare system to support infected patients. Therefore, a healthcare system that can monitor and supervise at-home COVID-19 patients is of important and necessary to lessen the pressure on the public health system as well as to ease the anxiety of patients that receive incomplete treatment. Our system include terminal equipment which collects, transfers via internet and synchronizes the healthcare data with the administration center. For the health care data, the saturation of peripheral oxygen (SpO2), body temperature, heart rate, blood pressure and some air quality parameters such as oxygen, carbon mono oxide and gas will be measured at home. Our system was tested for performance on 250 volunteers at school and 12 hospitalized COVID-19 patients and evaluated for the accuracy. All the healthcare stats are measured precisely and synchronized successfully with existing data at the administration center that are reviewed by doctors easily. This works suggested that using our system could significantly reduce the pressure on public medical system during the pandemic by ensuring that all the patients will have instant professional advise using those at-home healthcare data. Furthermore, our embedded system can be developed to be a kind of smart-home healthcare in general.

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