For consideration under COVID -19 Initiatives by NITs

Title: Detection of COVID-19 with Lung Sound with Artificial Intelligence

Category: Data Analytics, AI to model epidemic patterns and disease dynamics

Abstract:

The automatic analysis of respiratory sounds has been a field of keen research interest during the last decades. Automated classification of respiratory sounds has the potential to detect abnormalities in the early stages of respiratory dysfunction and thus enhance the effectiveness of decision making. However, the existence of a publically available large database, in which new algorithms can be implemented, evaluated, and compared, is still lacking and is vital for further developments in the field. Thus in our work, we are using a publically available dataset and trying to present a state-of-the-art model machine learning model for detection and classification of pulmonary diseases.

In the current situation, coronavirus (COVID-19) is a pandemic disease, which has already infected more than 19 lakh people and caused fatalities of above 1 lakh, mainly due to lung damage. According to WHO, quick detection and isolation of COVID patients would drastically reduce the spread rate of this disease. However, in India, it takes more than three to six hours for the detection of coronavirus per patient. As COVID patient's lungs get affected at the preliminary stage, by using a machine learning model, we can perform the detection of coronavirus in minutes with high accuracy and repeatability. Hence, performing an automatic analysis of respiratory sounds using a machine learning model can both save cost and life.

Expected Time-line: 6 months

Remarks: Funding requirement -Rs. 1, 00,000/-

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