

# Identification of related technologies associated with Asthmatic Wheeze Detection Systems - A Review

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**Abstract.** Breathing difficulties are a common symptom of lung disorders such as chronic obstructive pulmonary diseases and asthma. Your airways may narrow, swell, and create additional mucus if you have asthma. This may obstruct your airways and cause shortness of breath, coughing, a whistling sound when you exhale and wheezing. Therefore, wheezing can be used as a crucial diagnostic tool for the identification of various diseases. An individual's respiratory rate increases when they wheeze, and as a result, their lungs are more likely to work harder than they normally would. The presence of low blood oxygen levels, elevated heart rates, increased breathing sounds, increased breathing rates, and coughing can all be utilized to diagnose wheezing in a person. In this study, the aforementioned characteristics are used to identify wheezing in an asthmatic patient. According to studies done by the Asthma and Allergy Foundation of America (AAFA) for the year 2019, this ailment affects Americans of all ages in the US. Asthma claims the lives of 11 Americans on average each day. According to the most recent study done by the Asthma and Allergy Foundation of America (AAFA), 4,145 persons with asthma will pass away in 2020. With the proper treatment and care, almost all of these fatalities may be prevented. Therefore, this review study contains the study of such systems to determine what technologies can be best in developing this kind of system to support developers while considering the accuracies of those systems. After studying these technologies has been identified that Convolutional Neural Networks can be used to develop this kind of system due to their high accuracy of it. The suggested approach accurately recognizes wheezing characteristics in a lung sound using canonical correlation analysis. Because these systems deal with patient lives, accuracy should be a top priority while building them. As a result, applications are carefully evaluated in light of these factors. Future research on systems related to other respiratory sound detection and classification techniques in the medical field will be very helpful because this study mainly focused on systems used for wheeze detection.

**Keywords:** *chronic obstructive pulmonary diseases, asthma, wheezing, convolutional neural networks, canonical correlation analysis*