

(54) Title of the invention : A WEARABLE NON-INVASIVE ASTHMA DIAGNOSTIC SYSTEM AND METHOD OF OPERATING THEREOF

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(71)Name of Applicant :

1)PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur

Address of Applicant :PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P.O. Khamaria, Jabalpur - 482 005, Madhya Pradesh, India Jabalpur -----

Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

1)BUJETHIA, Priyanshu

Address of Applicant :PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P.O. Khamaria, Jabalpur - 482 005, Madhya Pradesh, India Jabalpur -----

2)SHAKYA, Uday

Address of Applicant :PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P.O. Khamaria, Jabalpur - 482 005, Madhya Pradesh, India Jabalpur -----

3)SINGH, Priyansh

Address of Applicant :PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P.O. Khamaria, Jabalpur - 482 005, Madhya Pradesh, India Jabalpur -----

4)JAISWAL, Anand

Address of Applicant :PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P.O. Khamaria, Jabalpur - 482 005, Madhya Pradesh, India Jabalpur -----

5)BHAVSAR, Swarnima Shailesh

Address of Applicant :PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P.O. Khamaria, Jabalpur - 482 005, Madhya Pradesh, India Jabalpur -----

6)GOYAL, Arnav

Address of Applicant :PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P.O. Khamaria, Jabalpur - 482 005, Madhya Pradesh, India Jabalpur -----

7)BHATTACHARJEE, Amrita

Address of Applicant :PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P.O. Khamaria, Jabalpur - 482 005, Madhya Pradesh, India Jabalpur -----

(57) Abstract :

The present invention discloses a wearable asthma diagnostic system comprising a vest to be worn by the patient, embedded with plurality of digital microphone sensors (1) positioned over posterior thoracic auscultation zones. Each sensor is connected with an individually controlled power line and a shared data line, allowing only one microphone to be activated at a time. A microcontroller sequentially powers the microphones, while a processor records lung sounds from each sensor following a stabilization delay, forming a multi-channel audio dataset. The processor analyzes the dataset using a trained machine learning algorithm to detect respiratory features and computes a diagnostic severity score indicative of asthma symptoms. The score and optionally anonymized audio data are transmitted via a wireless interface to a cloud server, which maintains a longitudinal health record and supports population-level analytics. A mobile application enables patients and clinicians to view diagnostic results, historical trends, and securely share medical reports.

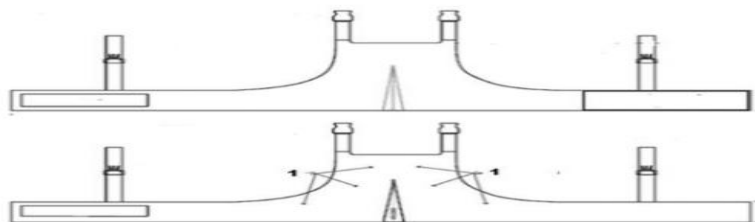


FIGURE 1