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Scientists in Kolkata explore breath patterns to diagnose gastric diseases

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To open up new non-invasive avenues for early detection, selective classification, and assessment of progress of various gastric complications



A newly developed non-invasive method of recognising breath patterns can help rapid, one-step diagnosis and classification of various gastric disorders like dyspepsia, gastritis, and gastroesophageal reflux disease (GERD).

Prof. Manik Pradhan and his research team at S. N. Bose National Centre for Basic Sciences, Kolkata, under the Department of Science and Technology (DST), Government of India, used a pattern-recognition based clustering approach that can selectively distinguish the breath of peptic ulcer and other gastric conditions with that of healthy individuals.

The team used machine learning (ML) protocol to extract the correct information from the large complex breathomics data sets generated from exhaled breath analysis. The breath-patterns generated from the patients are irrespective of the patient's basal metabolic rates (BMR) and other confounding factors such as age, sex, smoking habits, or lifestyle.

Currently, peptic ulcer disease is an important medical-social problem that has received special attention all over the world. *Helicobacter pylori* bacterial infection is considered to be the most significant risk factor for the development of this disease.

The scientists have developed a prototype device called "Pyro-Breath", clinically validated it in a hospital environment and patented it. The relevant technology has been transferred to a startup for potential commercialisation.