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# IIT-Hyderabad develops 'pendant' that can monitor heart rhythm

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**C**HENNAI: It requires a trained medical professional to interpret ECG signals for any abnormality in heartbeat. Now, a 5mm chipset that can be worn as a pendant, though connected to ECG leads on the chest, can do that job and minimise hospital stay.

The chipset developed at Indian Institute of Technology-Hyderabad can monitor heartbeat and send an alert to the user and the doctor on variations in heart rhythm if it requires medical attention. The chip with 'embedded intelligence' helps maintain the medical history of the user. The technology, which has shown close to 95% accuracy during initial tests, will soon undergo field trials.

Studies have found that global prevalence of heart-related diseases will increase by almost 75% by 2020. The existing devices do not have the capability to process and interpret data for medical intervention.

The chipset records heartbeats through ECG leads attached to a body and processes the data. If it finds variation from the normal rhythm of heart that requires medical help, it activates the rest of the chip. The chipset, which is connected to a smartphone, alerts the user through an installed application. The app also alerts and transmits ECG signals to a doctor, whose contact details are stored. When there is no variation in heart rhythm, the rest of the chip does not get activated, thereby saving power.

Assistant professor at Advanced Embedded System and IC Design Laboratory Amit Acharyya said the technology has novelties, including an embedded intelligence that can interpret the difference between ECG abnormalities that may or may not require medical attention.

"There are several wearable devices that can keep track of the heart rhythm. But they are all connected to a central server to which the ECG signals are transmitted and later interpreted by a professional," Acharyya said. "Our chip does all of this, yet consuming as little as one milliwatt battery power," he added. "When compared to a chip that can store five hours of data, our chip can save 35 hours of data in a compressed format," said Acharyya.