

# IAF installs BITS Pilani Goa's anomaly detection system to warn against intruding wild elephants

The AI-powered algorithm can detect a faulty signal indicating probable anomaly in the system and raises a flag to warn the users of the device

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**VASCO:** The Indian Air Force (IAF) in its Bagdora air base in West Bengal have installed Artificial Intelligence-based Image Anomaly Detection System developed by HappyMonk AI, a start-up cofounded by researchers at BITS Pilani and incubated at the Goa Campus to warn against wild elephants intruding into the air base.

Being in the vicinity of wildlife sanctuaries, Bagdora regularly reports of man-animal conflict, involving wild elephants.

"In this backdrop, our alert system will help the Air Force in preventing any damage to its assets by the

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**– Prof Snehanshu Saha, Associate**

*Professor, Computer Science and Information System, BITS Pilani Goa Campus*



elephants,” Prof Snehanshu Saha. Associate Professor, Computer Science and Information System at BITS Pilani Goa Campus told **O Herald**.

“It's an AI powered algorithm, deployed on the device and reads data from sensors fitted to the device. It issues alert on detecting any abnormality,” Prof Saha said, on the sidelines of two-day 'Joint Anuradha and Prashanth Palakurthi Centre for Artificial Intelligence

Research (APPCAIR) Workshop 2023' on Artificial Intelligence, which began on Monday in Goa.

The algorithm developed by researchers at BITS Pilani Goa Campus can detect a faulty signal indicating probable anomaly in the system and raises a flag to warn the users of the device.

“Another example is GE Positron Emission Tomography (PET) scanner, which is an imaging test that produces images of human organs and

tissues at work. PET administrator or technician gets alert if it detects anything abnormal,” Prof Saha said, who developed the system with Prof Santonu Sarkar.

“For the PET scanner, the device exists already. We built the AI algorithm and deployed on the device,” he said.

This technology was conceived from the practical requirements on the ground where the administrators use their tacit experiences to predict any imminent malfunctioning.

He said “We aimed to encode their experiential knowledge in a machine learned tool by training the tool with data generated by the equipment when it is operational.”

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“The challenge in such a case is that the equipment seldom fails; therefore it is quite difficult to get past scenarios when the equipment has failed. We therefore developed techniques where the machine learning tools do not require any failure examples to learn the behaviour of the equipment,” Prof Sarkar said.

“We used actual data of the industrial system to verify our approach. The results are extremely encouraging, our approach has been able to detect all potential malfunctioning cases, without missing anything,” he said.