TACTICAL CANINE SYSTEMS

Integrated Project – Bachelor's in Electrical and Computer Engineering

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PROBLEM

Military and security forces often rely on dogs for high-risk operations, yet they lack real-time information about the dog's safety and surroundings. The absence of effective monitoring and communication systems compromises mission success and endangers the animals.
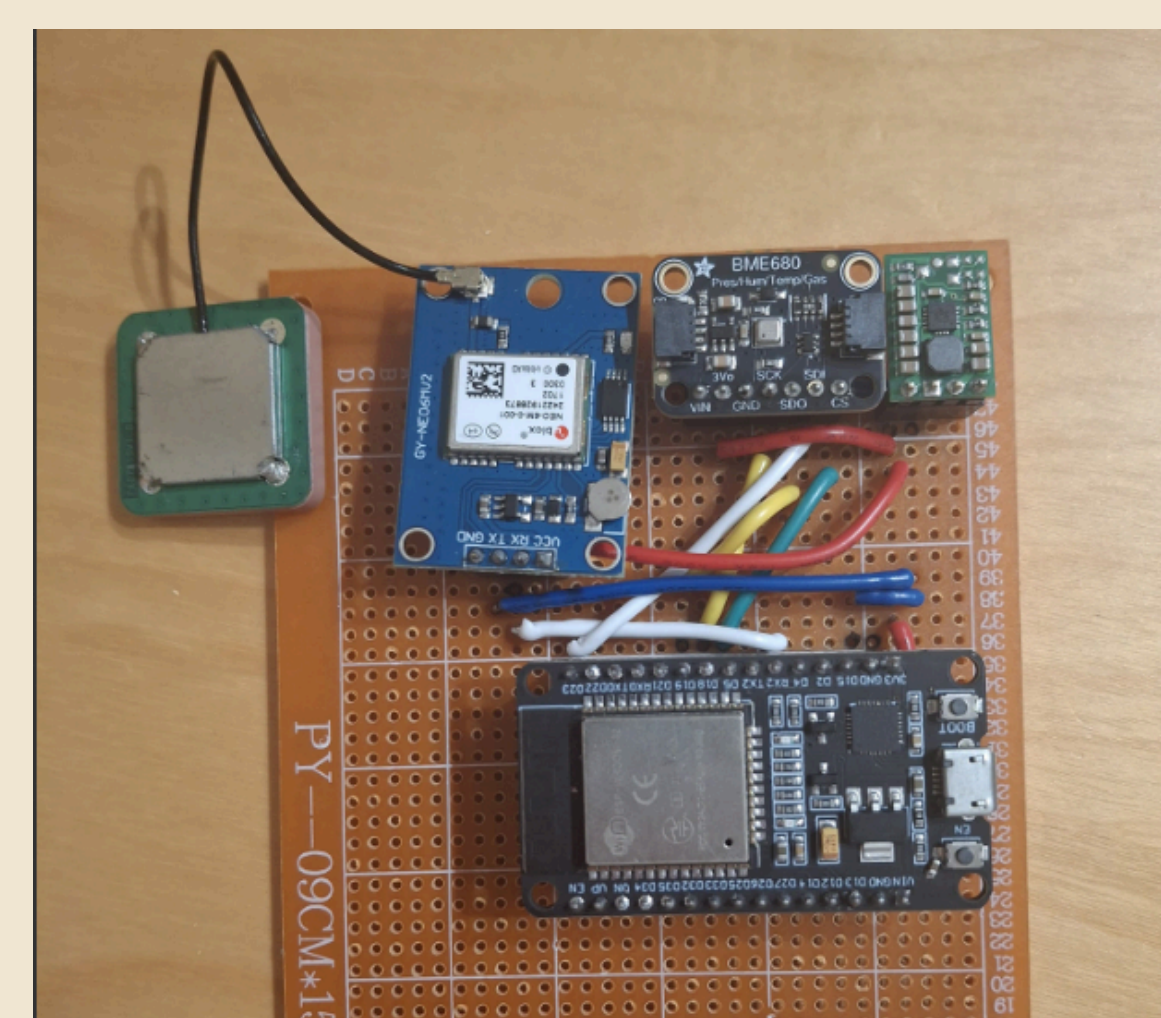
SOLUTION

We developed a non-ballistic vest equipped with sensors, GPS, and a camera, capable of transmitting real-time data to a remote web platform. This allows handlers to monitor the dog's status and environment instantly, improving both safety and operational efficiency.

TECHNOLOGY USED

- ESP32 Module NodeMCU
- XIAO ESP32S3 Sense
- GPS
- Sensor BME680
- Vest and helmet

PROTOTYPE

Our prototype consists of a tactical vest equipped with sensors, GPS and a high-resolution camera. The electronic components are carefully distributed to ensure comfort, water and dust resistance, and operational durability. The camera is mounted on the dog's head, while all other electronics are housed in the vest, enabling real-time monitoring and communication during missions.

INTERFACE

The web interface provides real-time access to all sensor data and dog location via GPS. Handlers can monitor environmental conditions (temperature, humidity, gas levels) and receive live video from the onboard camera. The platform is designed to be responsive, user-friendly, and accessible from any device.
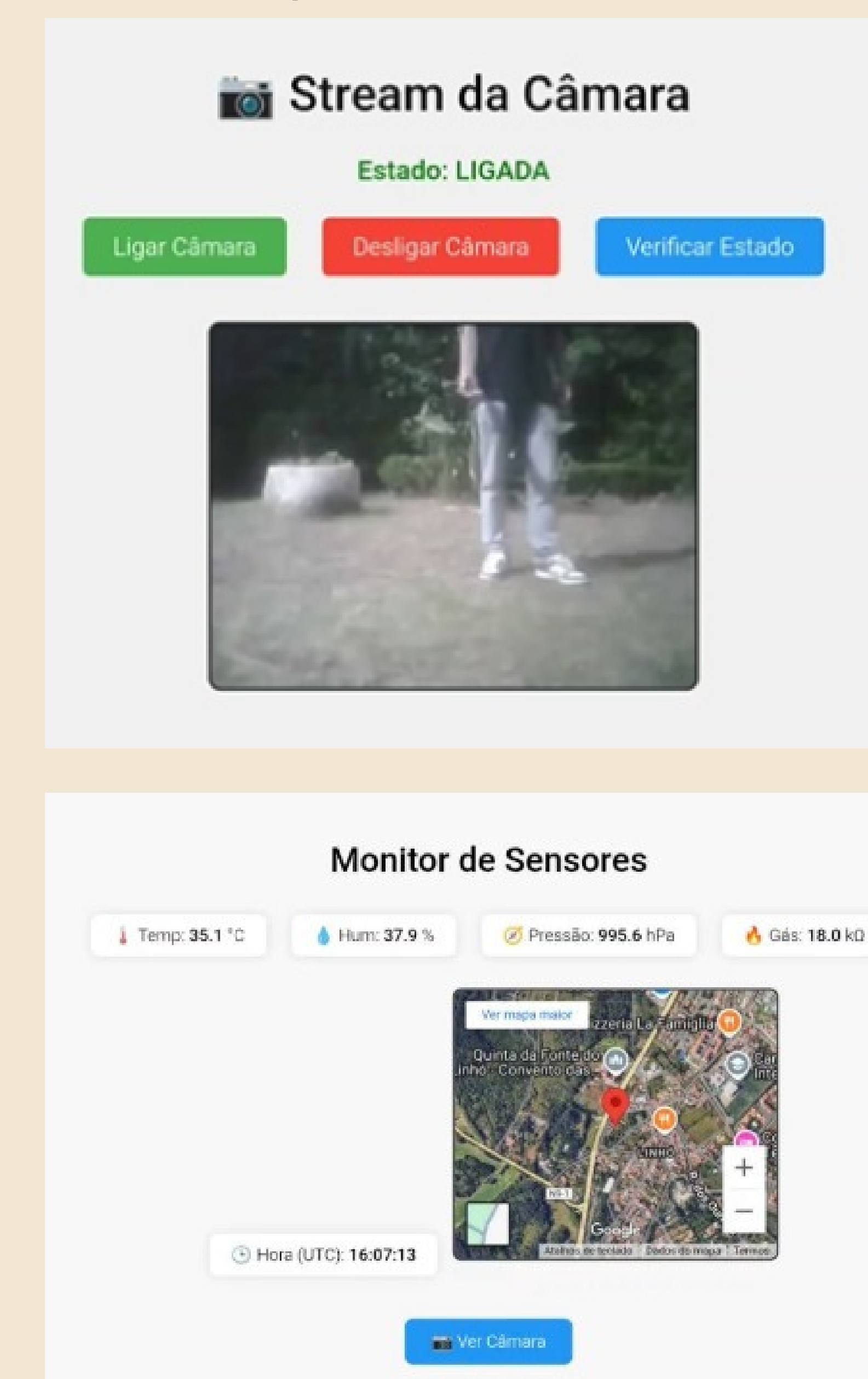
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