Seat-Attached Human Detection Device for Automatic Attendance System

Overview:

This project presents a seat-attached device designed to detect human presence for use in an automatic attendance system.

The device is not a chair itself, but a compact module that can be easily installed on any existing chair.

By utilizing temperature and pressure/vibration sensors, the device can detect whether a human is seated and then send data to a central system. This removes the need for traditional manual roll calls and streamlines the attendance process in classrooms, offices, and meetings.

Objectives:

1. Reduce the time spent on manual roll calls.

2. Provide a user-friendly and non-intrusive attendance system.

3. Create a scalable system that can be integrated into schools, organizations, or large events.

How It Works:

The device is attached to a chair (no replacement of the chair is required).

Sensors detect human body temperature and pressure/vibration when someone is seated.

Once detected, the device communicates the signal to a central database.

The system can be integrated with displays, online dashboards, or mobile apps for real-time attendance tracking.

Advantages:

Easy installation: can be mounted on any chair.

Portable and reusable: can be moved and reattached to different chairs.

Scalable: potential to expand for use in entire classrooms, schools, or organizations.

Limitations / Considerations:

Production cost is currently uncertain and depends on the choice of sensors and materials.

If the device is too large, it may cause discomfort when seated.

Malfunctioning sensors may lead to incorrect attendance detection.

Future Improvements:

Miniaturize the design to make it as thin and unobtrusive as possible.

Optimize the sensor selection to balance low cost and high accuracy.

Develop software with error-checking algorithms to minimize false detections.

Explore wireless connectivity options (e.g., Wi-Fi, Bluetooth, or LoRa) for large-scale integration.

Potential Applications:

School or university classrooms.

Office meeting rooms.

Training sessions, seminars, or conferences

Large-scale events requiring automated check-ins

Conclusion:

The Seat-Attached Human Detection Device provides a practical and scalable solution to automate attendance tracking.

By combining simple hardware with smart system integration, it has the potential to replace traditional roll calls and improve efficiency in both educational and professional settings.

Project Idea by: Diya-uddin   Jeh-arsae

Date of Creation: August 27, 2025