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CPE160P-4_A1

Intelligent waste management system using deep learning with IoT

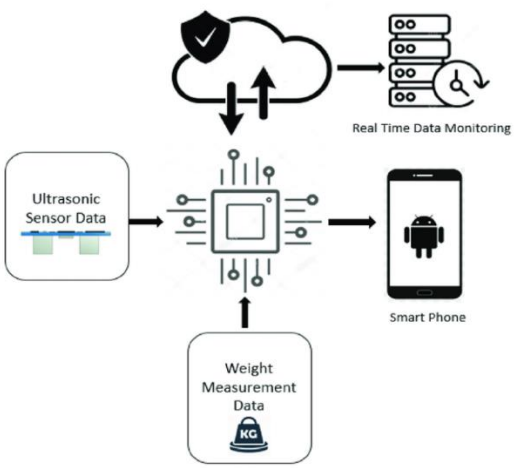
Objectives:

The aim of the paper is to create an IoT based technology to simulate a waste management system for the demolition of waste conducted by recycling and landfilling. This paper proposed the use of ultrasonic sensor, weight sensor, and a microcontroller to build the waste management system. The waste management system's capable architecture, based on deep learning and IoT, is reflected in this study.

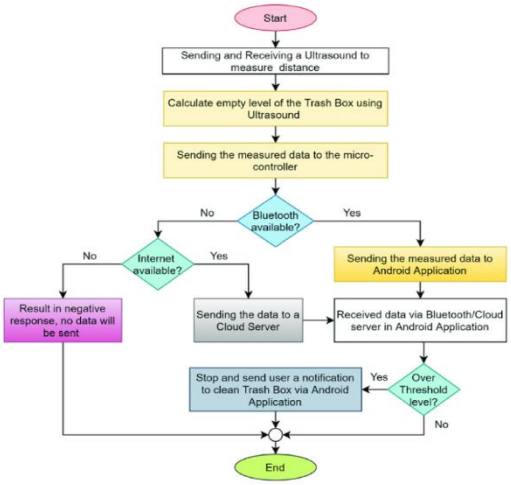
Materials:

- *Microcontroller*
- *Ultrasonic sensor*
- *Weight sensor*

Hardware components:



Flowchart:



Functionalities:

Using a microcontroller equipped with several sensors, the concept presents the architectural design of a smart garbage can. For data monitoring, the suggested approach makes use of Bluetooth and IoT connectedness. Bluetooth facilitates close-quarters data monitoring via an Android app, while IoT allows for real-time data administration from anyplace.

Why it is considered an application of transducers and sensors?

The intelligent waste management system uses transducers and sensors to monitor waste levels. The ultrasonic and weight sensors convert physical measurements like distance and mass into electrical signals processed by a microcontroller. This data is then transmitted via IoT for real-time monitoring and management.

Reference:

Rahman, Wahidur & Islam, Rahabul & Hasan, Arafat & Bithi, Nasima & Hasan, Mohammad & Rahman, Mohammad Motiur. (2020). Intelligent waste management system using deep learning with IoT. Journal of King Saud University - Computer and Information Sciences.
https://www.researchgate.net/publication/344365811_Intelligent_waste_management_system_using_deep_learning_with_IoT#pf4

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CPE160P-4_A1

Low-cost bus seating information technology system

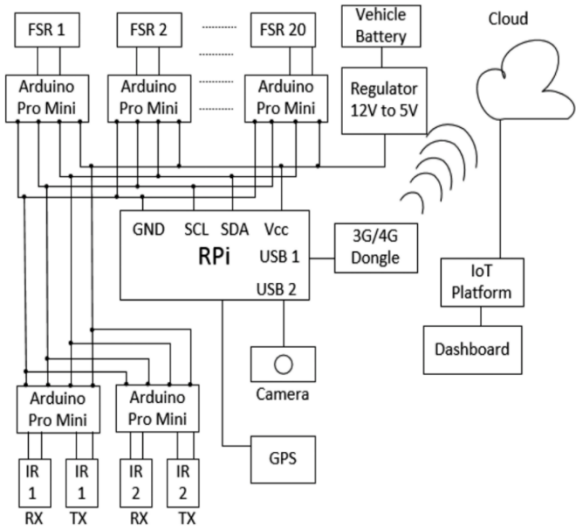
Objectives:

The study's goal is to create, put into practice, and evaluate an Internet of Things-based system for monitoring bus occupancy in real-time. Using a variety of sensors, such as the IR sensor and force-resistive resistors, among others, it seeks to offer precise data on passenger entry, seat occupancy, and bus location.

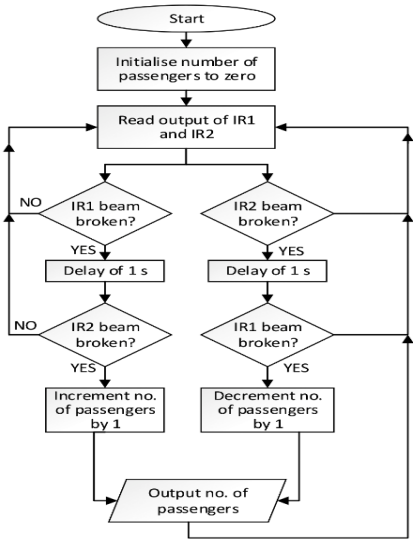
Materials:

- Raspberry Pi microcontroller
- IR sensor
- Force-sensitive resistors
- GPS
- USB camera

Hardware components:



Flowchart:



Functionalities:

The Bus Seating Information Technology system uses Internet of Things to track vehicle position and occupancy in real time. Utilizing a Raspberry Pi for data processing, it uses sensors to identify seat occupancy, passenger movement, and GPS tracking. An IoT platform receives the gathered data, which can then be viewed via a desktop or mobile app.

Why it is considered an application of transducers and sensors?

Since the bus seating information system utilizes force-sensitive resistors and infrared sensors to detect seat occupancy and passenger movement, it is an example of a transducer and sensor application. These sensors use a Raspberry Pi microcontroller to process electrical impulses that represent physical actions. The information is then sent over IoT to enable real-time bus occupancy and position tracking.

Reference:

Murdan, Anshu & Bucktowar, Vicky & Oree, Vishwamitra & Enoch, Marcus. (2020). Low-cost bus seating information technology system. IET Intelligent Transport Systems. 14. 1303-1310. 10.1049/iet-its.2019.0529. https://www.researchgate.net/publication/346057714_Low-cost_bus_seating_information_technology_system