ME 304 Project

Smart Luggage Trolley

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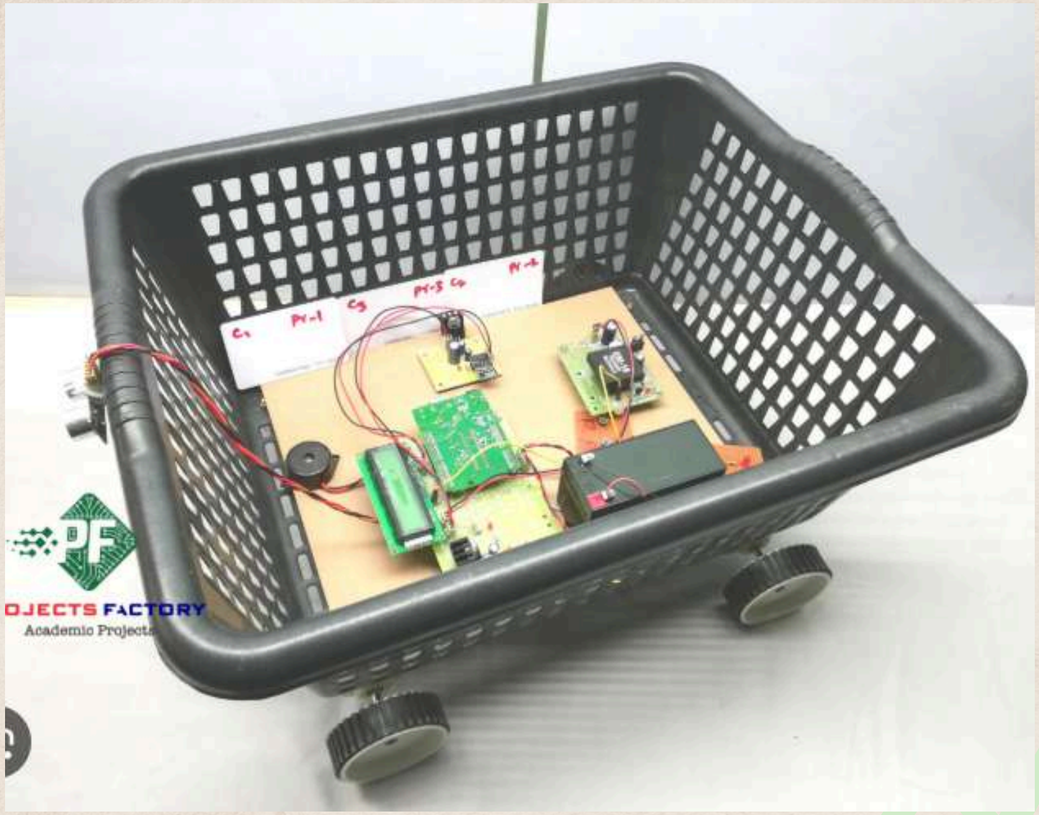
Introduction

Imagine a world where your luggage moves effortlessly with you. Our Smart Luggage Trolley is packed with cutting-edge features, including auto-follow technology, obstacle detection and GPS tracking, ensuring a smooth and stress-free travel experience. No more dragging heavy suitcases—just seamless, intelligent mobility.



Project Goals

1. Reduces physical effort for travelers by automating luggage handling.

2. Improves convenience with smart navigation systems

3. Integrate obstacle detection sensors to avoid collisions

4. Develop trolley into a portable frame that can be carried anywhere

Roadmap

1. Research and finalize components based on budget and requirements.
2. Design the mechanical structure of the Trolley using CAD software.
3. Assemble hardware components and connect them according to your circuit design.
4. Write and test individual modules of code (e.g., auto-follow, obstacle avoidance).
5. Integrate all features into one cohesive system.
6. Develop a smartphone app for remote control and monitoring.
7. Test extensively in real-world conditions and make adjustments as needed.

Hardware Requirements

1. Microcontroller: Arduino Mega/ESP32 **(₹ 500)**
2. Motors: 4 x DC motors with motor drivers (L298N or similar) **(₹ 600)**
3. LiDAR Sensor: for advanced obstacle detection **(₹ 280)**
4. RFID tag and RFID Reader **(₹ 400)**
5. Teflon Plastic Sheet 30X30 cm **(₹ 400)**
6. Battery Pack: Rechargeable lithium-ion battery (12V, 10Ah) **(₹ 200)**
7. Wheels & Chassis **(₹ 500)**
8. GPS Module: NEO-6M GPS module for location tracking **(₹ 450)**

Most of components are available in lab.

Total :- ₹3130(worth 1400 not available in lab.)

Thank You