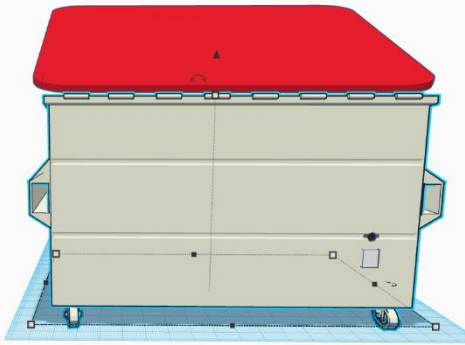
SMART WASTE MANAGEMENT SYSTEM USING IOT

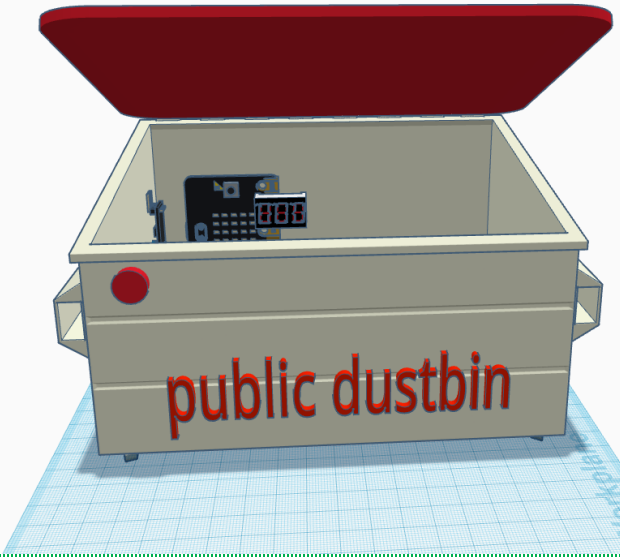
Problem Statement: Waste collection services are often inefficient, with trucks following predetermined routes regardless of whether bins are full or not. This results in unnecessary trips, wasted resources, and missed opportunities for recycling. How might we develop an IoT-based waste collection system that uses smart bins to monitor waste levels and dynamically adjust collection routes based on real-time data?

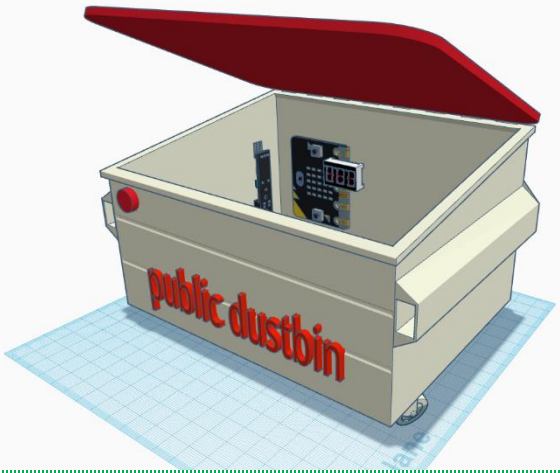
What have we come up with ?

- Our Smart Waste Management System aims to enhance waste collection processes through real-time monitoring and data-driven decision-making.
- By integrating sensors into waste bins, we can measure fill levels and transmit this information to a cloud platform.
- This enables waste collectors to optimize collection schedules, ensuring bins are emptied before they overflow.

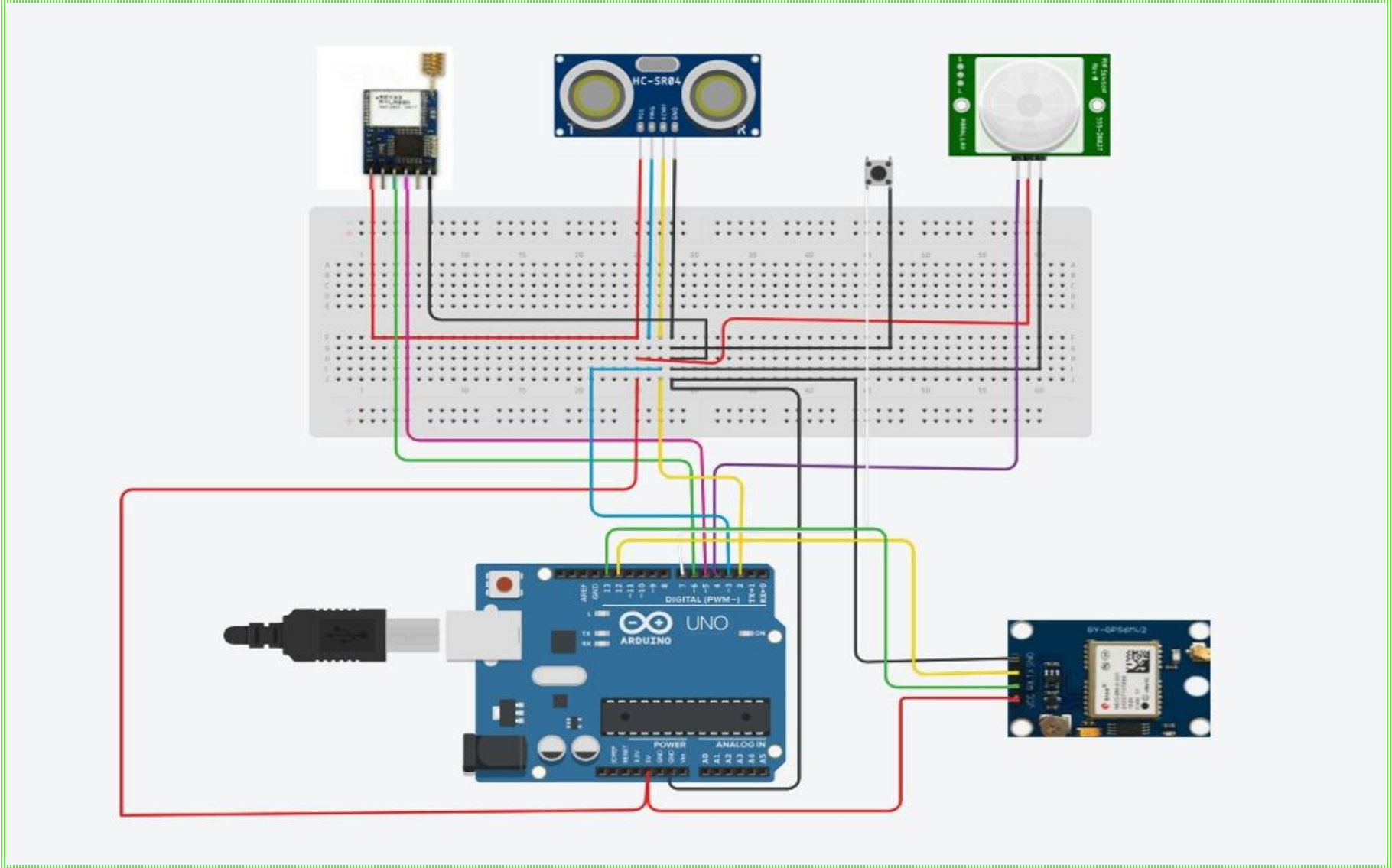
OUR DESIGN







CIRCUIT DIAGRAM

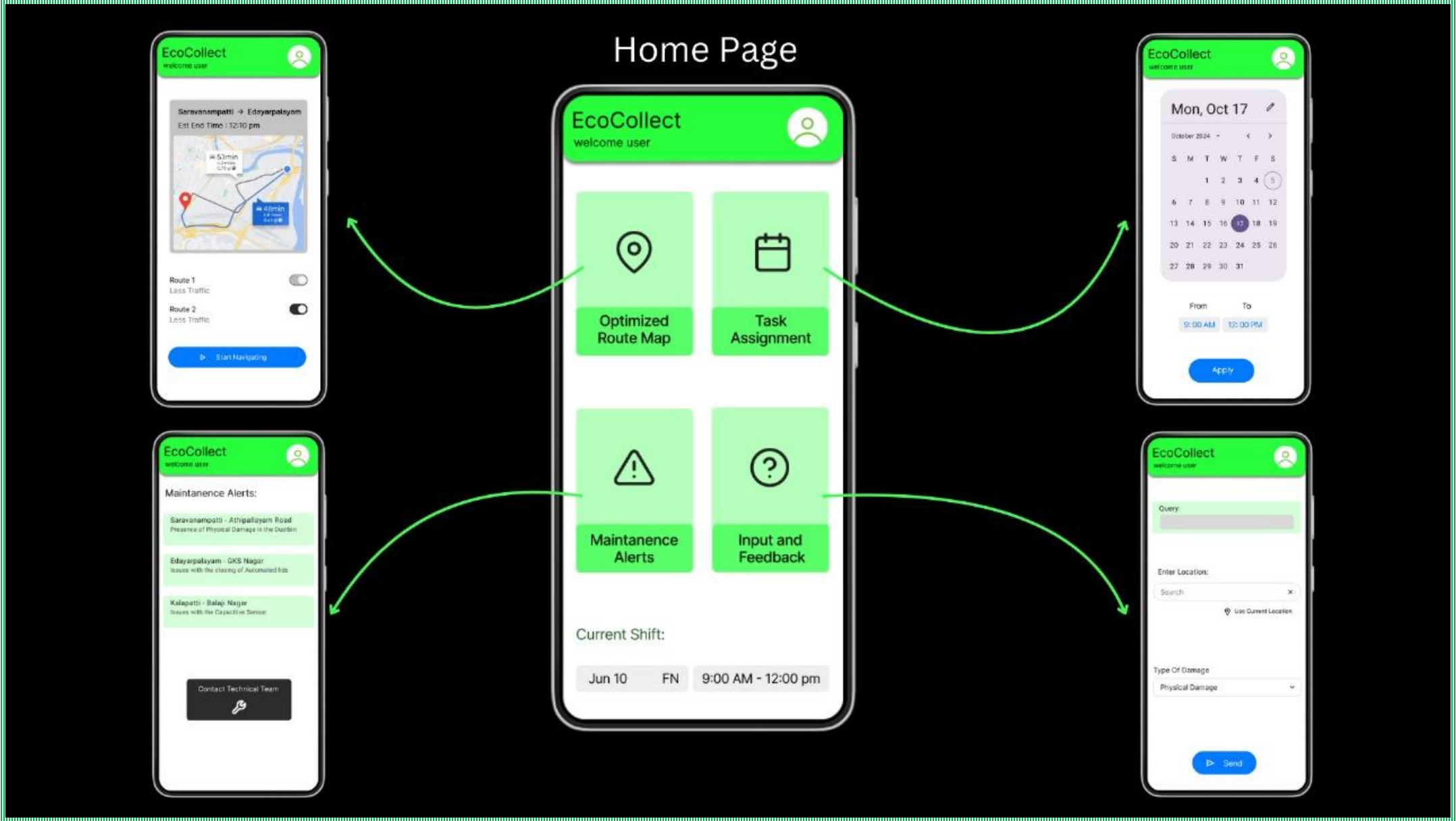


COST ESTIMATION

- Arduino UNO board -₹ 3000
- Infra red Sensor- ₹ 30
- Ultra Sonic Sensor-₹ 150
- Button- ₹ 20
- GPS – ₹ 400
- Lora WAN-₹ 3000

- Which brings to a sum of ~7000 approx.

OUR APP


Home Page
EcoCollect
welcome user
Optimized Route Map
Task Assignment
Maintanence Alerts
Input and Feedback
Current Shift:
Jun 10
FN
9:00 AM - 12:00 pm
EcoCollect
welcome user
Saravanampatti → Edayarpalayam
Est End Time : 12:10 pm
Route 1
Less Traffic
Route 2
Less Traffic
Start Navigating
EcoCollect
welcome user
Mon, Oct 17
From
To
Apply
EcoCollect
welcome user
Maintanence Alerts:
Saravanampatti - Athipalayam Road
Edayarpalayam - GKS Nagar
Kalapatti - Balaji Nagar
Contact Technical Team
EcoCollect
welcome user
Query:
Enter Location:
Search
Use Current Location
Type Of Damage
Physical Damage
Send

BENEFITS ?

- Cost Savings
- Environmental Sustainability
- Reduced Overflowing Bins
- Improved Efficiency
- Real-Time Alerts
- Integration with Smart City Initiatives
- Less Odor and Pollution
- Community Awareness
- Route Optimization
- Fuel consumption

INSIGHTS

- A survey of waste collection workers revealed that 40% reported spending more than 30% of their time driving to bins that are not full.
- Approximately 70% of waste collection workers believe that implementing technology like real-time tracking would enhance their efficiency and job satisfaction.
- A study found that 60% of residents have experienced overflowing bins at least once a month, leading to complaints and a perception of poor service.

THANKYOU!