LitterLens

Problem Statement:

Roadside litter has become a burgeoning issue, not only in our nation but in many countries worldwide. The consequences of this problem are far-reaching, with potential disruptions to the smooth flow of traffic, causing delays and posing safety hazards to both vehicles and stray animals. Moreover, the process of litter removal itself is a considerable financial burden. In the case of India, the nation expends millions of rupees annually on cleaning and maintaining its roadways. Tackling this challenge requires a concerted effort to raise awareness about responsible waste disposal and implement effective waste management practices to mitigate the adverse impacts of roadside litter on public safety, traffic flow, and economic resources.

Introduction:

LitterLens is an AI software designed to assist the government in automatically imposing fines on drivers who contribute to roadway litter, leading to land pollution. Picture this scenario: a person discards waste from their moving vehicle. LitterLens can identify and capture this litter, extract the license plate number of the vehicle, and store the information. With the license plate number, comprehensive details about the car owner can be retrieved, enabling the issuance of a fine notice for the violation of regulations related to littering.

Significance

- The project's goal is to minimize accidents caused by litter on roads, thereby emphasizing safety promotion.
- Individuals who breach the regulation are subject to fines, creating a continuous sense of accountability and fostering awareness to refrain from littering on the roads.
- The project aims to decrease the government's expenditure on road maintenance, resulting in capital savings.
- Maintaining cleanliness on roadways will help decrease the risk to the lives of stray animals.

Commercialization

- By selling the LitterLens software to government bodies, municipalities, or private organizations involved in waste management on a subscription or licensing basis. Private Organizations can include University Campuses, Hospitals, or IT parks.
- Partnerships with local governments, environmental agencies, or waste management companies. These collaborations can help in implementation and gaining credibility.
- We will also develop a scalable infrastructure to cater to varying demand.

Team Members:

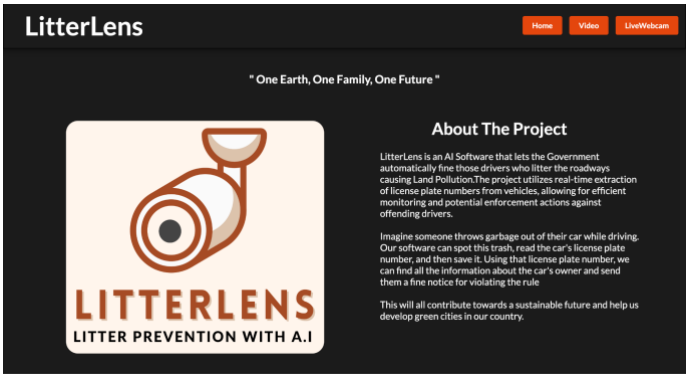
Mr. Meet Mali
Mr. Rajwardhan Sagare
Mr. Akash Patil

Mentors:

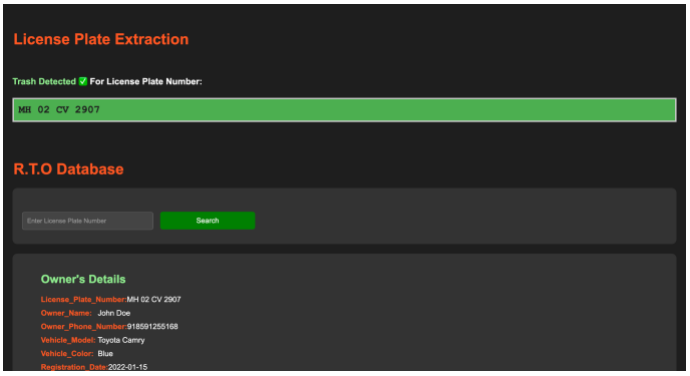
Dr. Deepa Parasar
Dr. Swetta Kukreja

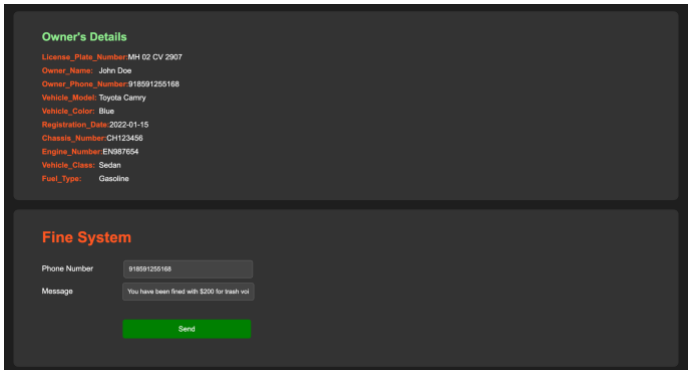
Screenshots

Home Page and Implementation of Trash Detection:

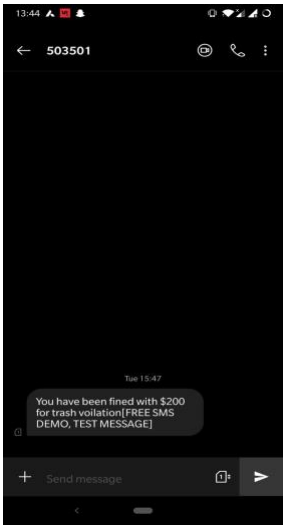


Extraction of License Plate, Fetching the owner's details and sending the fine message:

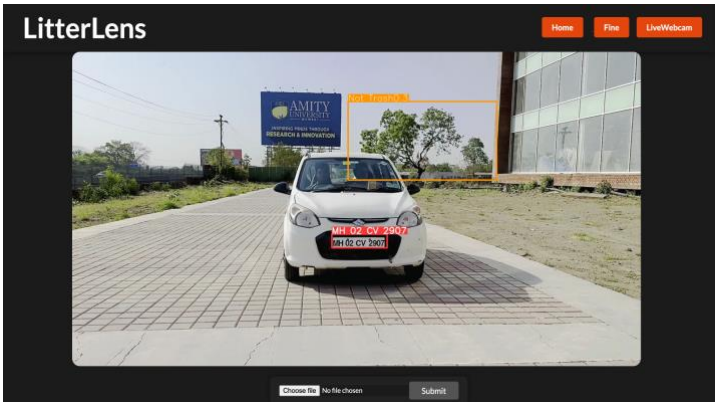


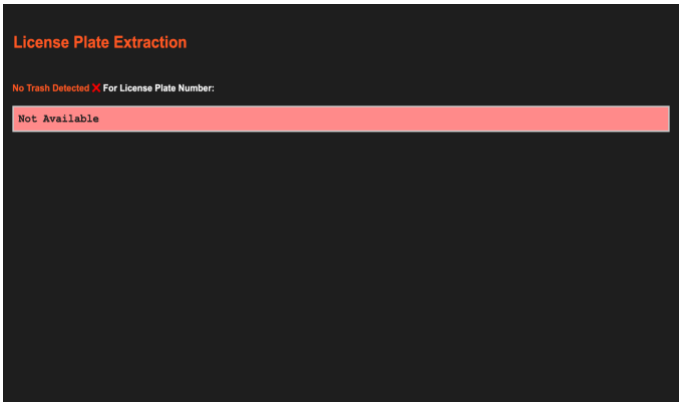


Proof of Sent Fine Message on mobile device:



If No Trash is Detected, then no License plate will be saved:



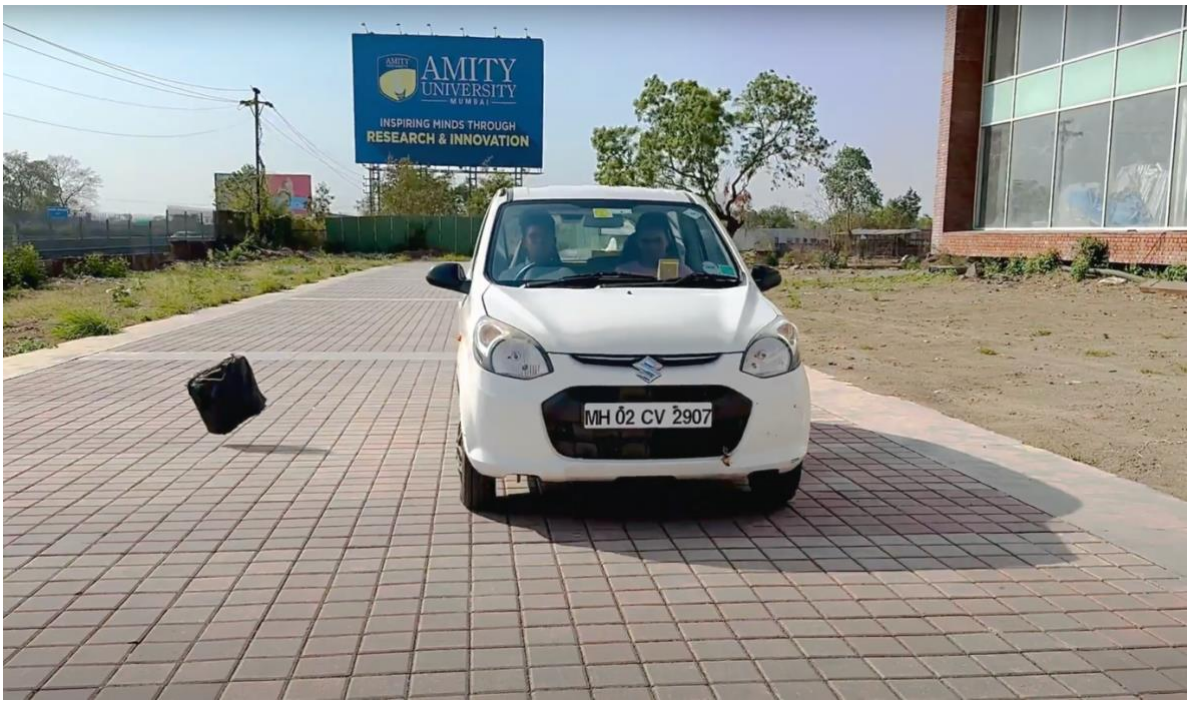


Results

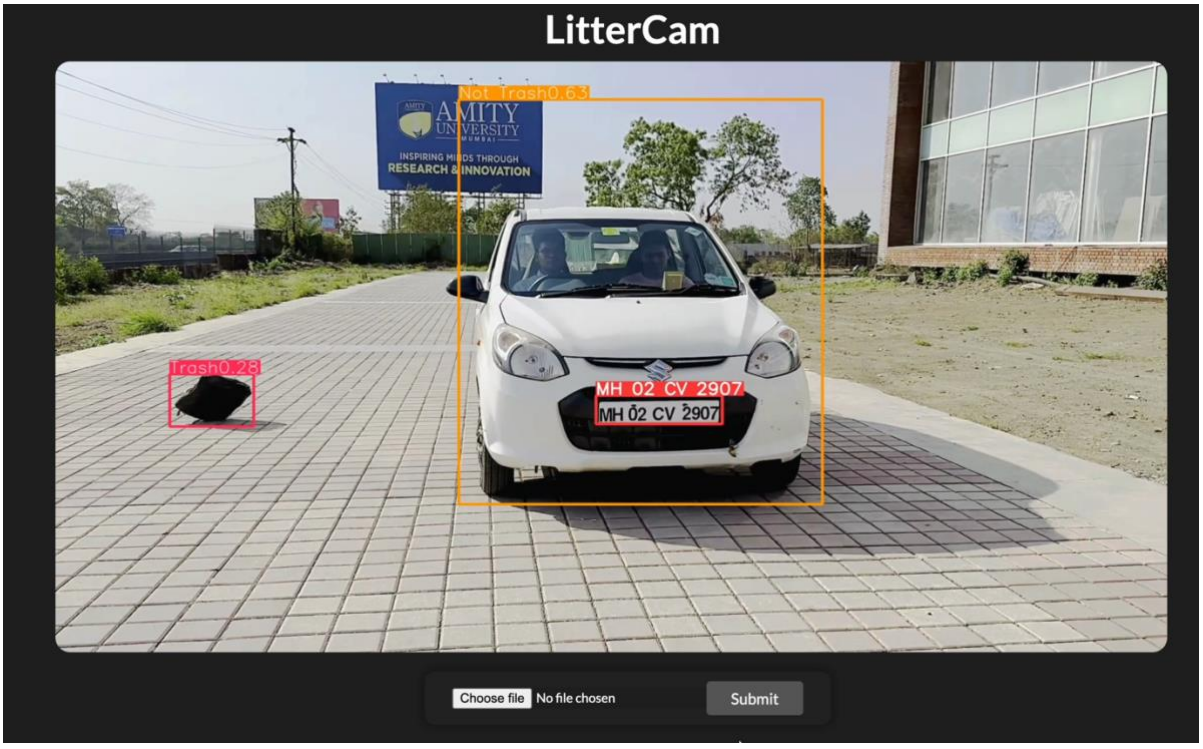
There can be multiple situations on the roadways, like: (Video Screenshots taken from the webapp are attached below)

1. Car throwing trash on the road.

Before:



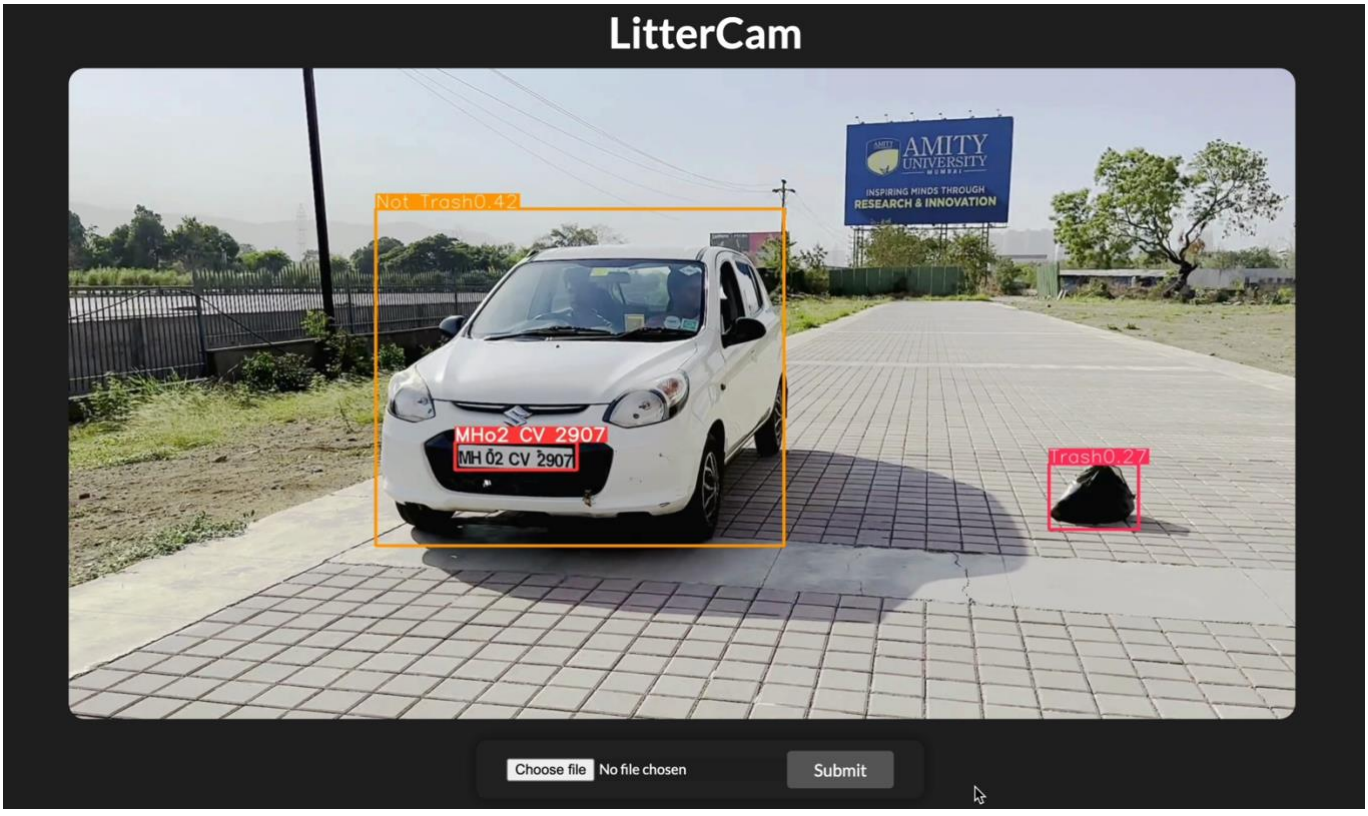
After:



2. Car throwing trash on the road from a different angle or direction.

Before:

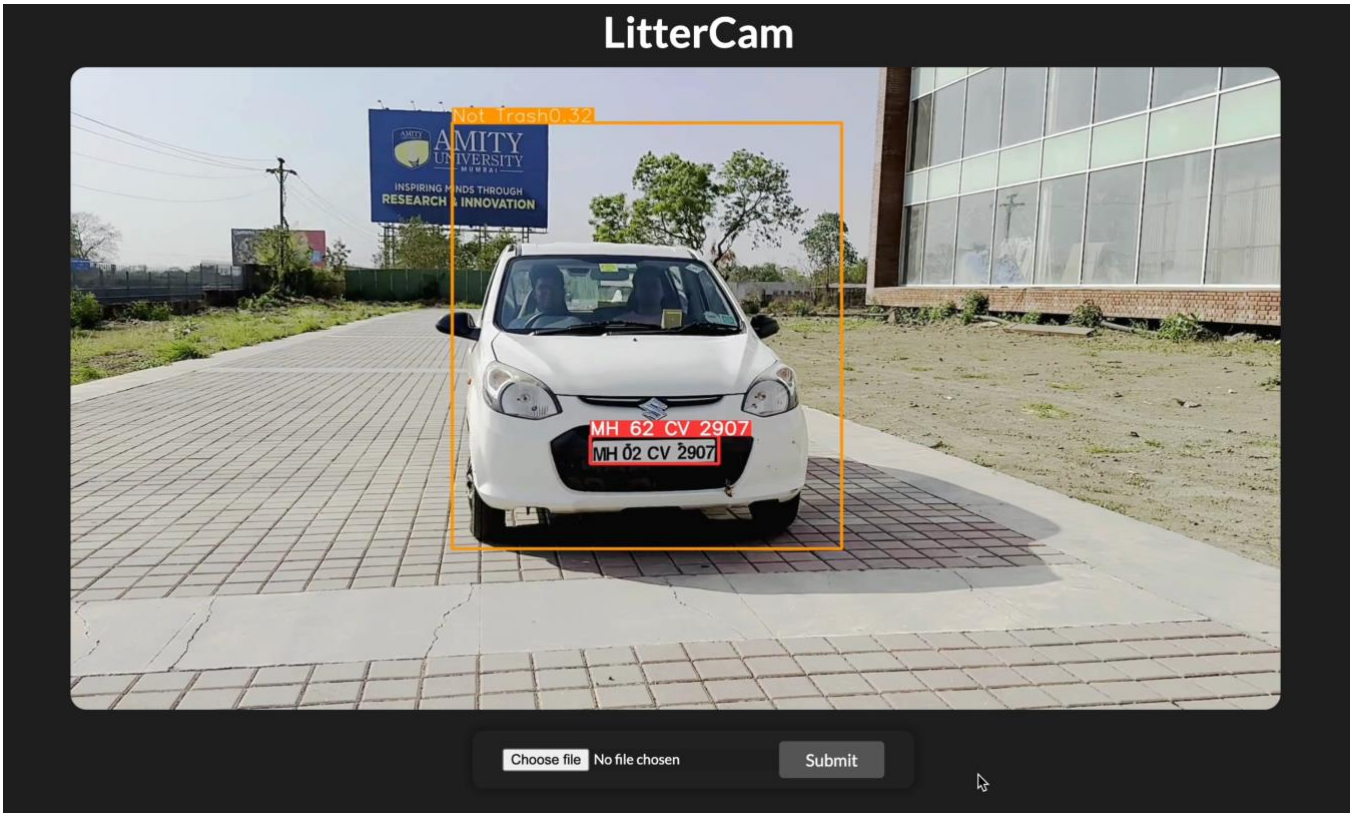
After:



3. Car throwing no trash at all.

Before:

After:



4. Multiple cars being captured at the same time.

Before:

After: