

# SENSOR SOLUTIONS FOR STREAMLINED MULTI-LEVEL PARKING

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## PROBLEM

In urban areas, limited parking availability wastes time and energy as drivers search for open spaces, increasing traffic congestion and fuel consumption, especially in multi-floor spaces. This inefficiency contributes to environmental harm and reduced productivity.

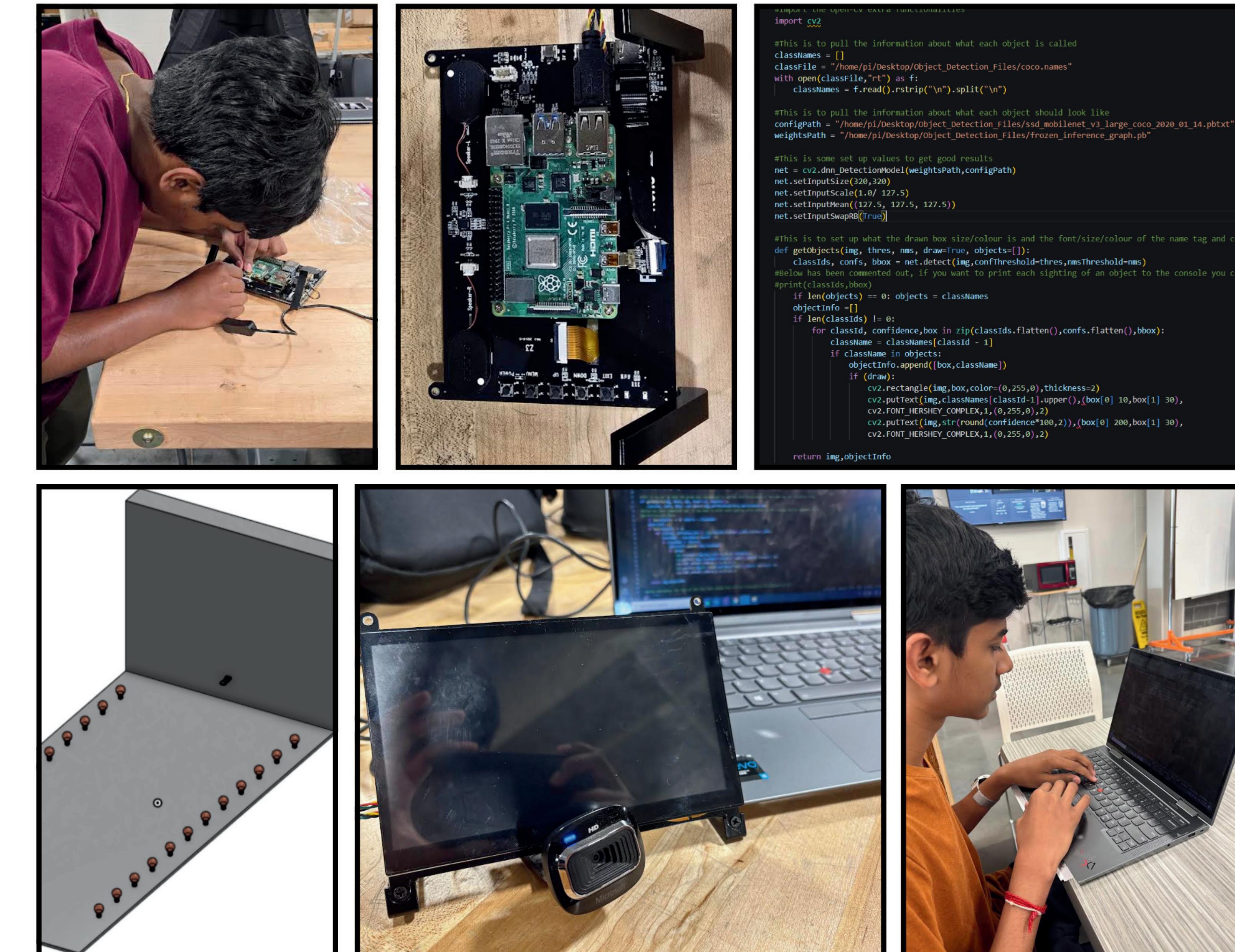
## BACKGROUND

Many people waste significant time, money, and effort in the quest to find parking. This seemingly mundane task often leads to frustration and inefficiency. As drivers circle around looking for available spots, they inadvertently contribute to environmental pollution by releasing multiple pounds of carbon dioxide and other harmful chemicals into the atmosphere. This not only exacerbates air quality issues but also contributes to global warming.

## LIMITATIONS

However, this product does have limitations. Mainly it will require a lot of the product to be implemented into any existing garage. Additionally, the system will have to be implemented in large scale for coordinated movements among the vehicles.

**How can sensor-based systems be used in multi-level parking spaces to reduce the time, cost, and environmental impact associated with finding available parking spots?**



## CONCLUSION

In conclusion, addressing the inefficiencies of urban parking is crucial for reducing traffic congestion, fuel consumption, and environmental harm. By implementing comprehensive solutions that include technological advancements, improved urban planning, and encouraging behavioral changes, cities can enhance productivity and a more sustainable parking ecosystem.

## PURPOSE

This innovation aims to alleviate pressure from parking time, decrease effort and energy waste, enhance urban mobility, improve accessibility for people with disabilities and families, reduce pollution, provide economic benefits by lowering infrastructure costs, integrate smart technology for better management, and enhance safety for pedestrians and drivers.

## EXISTING SOLUTIONS

Solutions like smart parking systems, mobile apps, and automated garages improve parking efficiency, but they often address only part of the problem. For example, smart parking systems can locate spaces faster but don't reduce vehicle numbers or emissions during the search. A comprehensive approach is needed for a sustainable and efficient parking ecosystem.

## METHODOLOGY

The method's we administered to come to our solution were: researching countless articles on parking efficiency and traffic control. We then ideated a solution that would streamline the parking process and that could save time, energy, and effort. Finally, we incorporated python documentation to build the product.