# Automated Retail Store

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Inspired by Amazon Go : **Computer Vision** based partially-automated store where customers are able to purchase products without using a cashier or checkout station.


https://www.youtube.com/watch?v=NrmMk1Myrxc

# Project Abstract

Our aim is to reduce computational cost inherent in using **Computer Vision** on such a large scale.

We present **Embedded Systems** based solution to replace the ‘checkout station’ for convenience of customer by saving time.

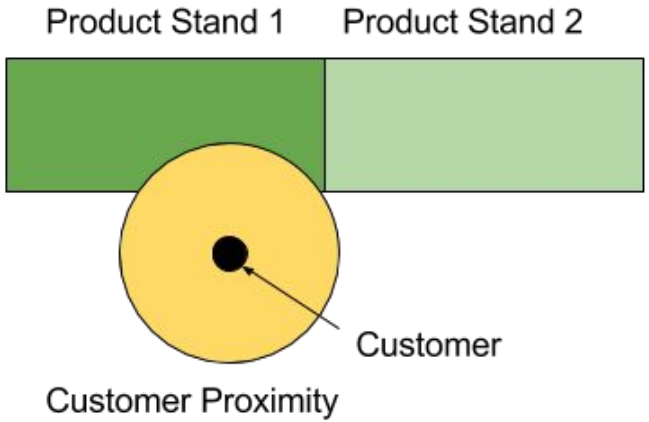
We plan to use location tracking along with weighing mechanism to identify purchased products.

Our project, once scaled, has potential to impact millions of people’s retail store experience.

# Customer Tracking :

We track the customers to identify which product stand the customer is accessing.

GPS can be used to locate the customer via smartphone application.




Here, customer is accessing Product Stand 1

# Purchased product

In order to determine which product the customer is picking, we plan to use weighing mechanism which will be associated with every shelf on product stand.

Whenever a product is picked, weight of corresponding shelf decreases which can be assessed by weighting mechanism.

We associate the purchased product with the customer who is in the vicinity of product.

# Hardware and Software Requirements :

Digital, Automated Weighing Mechanism (eg. spring with digital elongation measurement)

Establishing communication between Weighing Mechanism and Cloud (eg. raspberry pi)

Use IoT based architecture (eg. AWS)

Smartphone application which sends GPS location in real time to Cloud (eg. Android App Development)

# Challenges and Timeline

**Step 1 :** Predominant challenge to our project is to find out what is the best Weighing Mechanism and how to connect it with Cloud as IoT device. We aim to overcome this hurdle by March 20.

**Step 2 :** Assuming location data is available as input streams, we plan to design software which will combine the data from Weighing Mechanism and location to associate purchased product with customer. We plan present working solution by April 15.

**Step 3 :** If time permits, we plan to create Android Application which sends GPS information to our IoT solution designed in Step 2.