

# Democratization of Small-Scale Retailers on the Digital Platform All through Enabling Zero Contact Delivery and Pick-Up Pipeline

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**Abstract** - In India, one of the side effects of the covid-19 pandemic has been to change the landscape of commerce. In pre-pandemic times, people used to view shopping as an enjoyable experience and something to be cherished. But the current situation has severely restricted the movement of people. In this scenario, it is imperative that a paradigm shift takes place in the world of commerce as well. Essential commodities must be made available to households without the need for visiting crowded markets. Even though grocery delivery web apps like Big Basket, Amazon and Flipkart are available to cater to this need, the local businesses have been left out of this e-commerce revolution. In India, customers share a personal bond with the local business in their neighborhood. The aim of this paper is to present a framework through which local businesses can harness the power of latest technologies to enjoy the benefits of e-commerce. We have developed a web app through which local businesses can provide services to their valuable customers, without the need for physically visiting the store. Store owners can register themselves into the App and start providing services. Customers can choose to obtain their essential commodities from their favorite neighborhood stores rather than from anonymous apps. There are two main advantages of the proposed framework. On the one hand, it helps the local businesses to remain relevant in the times of the super malls. On the other hand, it helps customers to remain connected to their preferred neighborhood stores.

**Key Words:** Covid-19, Retailing, E-Commerce, Pandemic, Online Shopping

## 1. Introduction

The webapp is aimed at making the essential commodities purchase and sale 100% contactless and aimed at making the local stores more sustainable in this age of Ecommerce and online stores. The webapp is also designed keeping in mind the end users:

- 1) General Store/Small Scale Retailers.
- 2) Public who are new or have less knowledge about the online ecosystem.

The whole interface only has 2 buttons. The User Experience has been tailored keeping in mind the ease of use and also security. The app is made especially useful in times of Pandemic and epidemic where it is more important that the whole process is contactless and we keep the Stores/Medical

Stores as free of the general public as possible to further aid in quarantine and rehab processes. The users will be able to see the inventory at the stores near their live location at real time as the shop owners can update the inventory at virtually any time during the day and it is as simple as sending / sharing forwards on WhatsApp. The Shop Owners will be given another portal where they can login and create their own inventory with their own prices and the changes will be real time. Once the user places an order the Shop owner will be notified of the order and how far the user is. Once the order is packaged the Customer receives a notification stating the same where the Customer can then choose to either request for a delivery or to go themselves and pick up the order.

## 2. Related Work

There are no direct alternatives as all the other online essential commodities / healthcare delivery systems are supported with huge warehouses and don't aim at helping uplift the already existing stores. The alternative apps that the customers could opt for are Amazon, Big basket, pharm easy who all take upwards of a day to deliver the goods unlike the webapp. They also do not support the local already existing infrastructure. This waiting period of at least a day after placing the order is what makes the customers showing interest towards going out and shopping, thus leading to never ending queues near shops and also making it difficult during times of pandemic and epidemics.

Unlike existing options our webapp doesn't require any new inventory setup or new warehouses. We act as a platform connecting both the shop owner and customer and we also suggest the stores that are at a close proximity to the user so that the waiting time is further down and the delivery is often free of cost(foc) or without any extra charges. There is no learning curve for either the shop owner or the customers as the whole interface is made keeping in mind intuitive use. At any given time there won't be more than 4 buttons further reducing the chances of confusion and promoting ease of use.

### 3. Proposed System

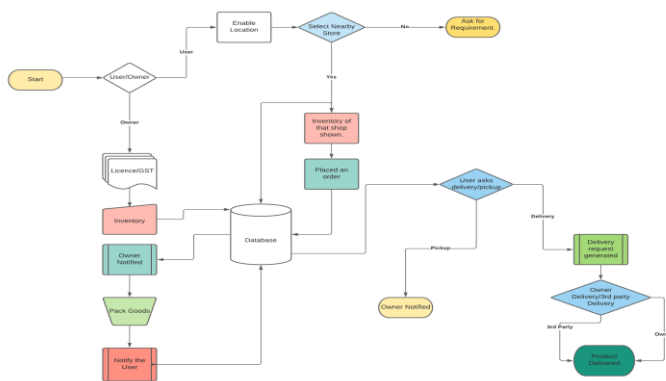


Chart -1: Flowchart / working of application

The system is made in such a way that the user and admin logins are separately maintained. Firstly, all the admins or shop owners must submit either their GST no. or License number in order to be part of the platform. Once they are verified, they will be given access to the inventory where they can create new inventory and also edit it and the changes will be reflected immediately without any lag as we are using a cloud base single database for both the consumers and the shop owners.

Once the order is placed by the consumer the shop owner is notified of the same and the process of packing and delivery begins. Once the goods requested by the consumer are packed and ready for pickup now the user is notified where they can decide to either pick up themselves or opt for 3<sup>rd</sup> party delivery options.[1]

The successful delivery results in a complete contact less process and in process uplifts the nearby existing shops and essential medical suppliers and also doesn't require any kind of warehouse setup.

### 4. Architecture

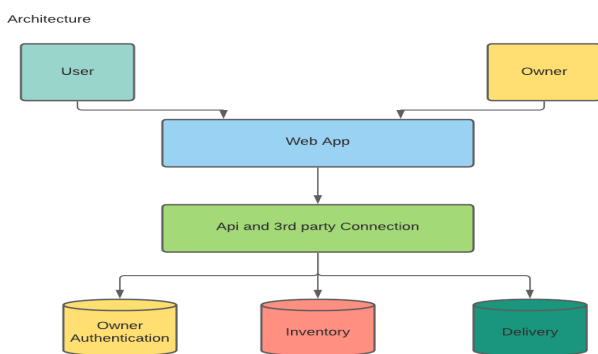


Fig -1: Architectural Diagram

We follow a 3 tier architecture [5,8] where in the first layer the users and the owners both access the web app which is internally connected to another layer which is 3<sup>rd</sup> party api[1,2]. Further the api/3<sup>rd</sup> party layer is connected with the database which is cloud based and is further divided into 3 smaller components.

Following this type of architecture allows us to keep different views to both users and the owners. This also gives us a greater control over the data that is been shown on the website. This level of data abstraction is possible because we use only one database that too which is cloud base and which is hidden with an API and 3<sup>rd</sup> party integration layer [1,2].

### 5. Implementation

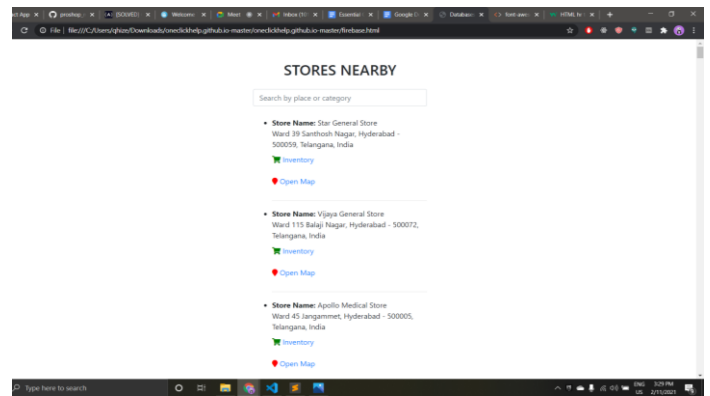


Fig -2: Stores Nearby

Users will be able to see all the stores nearby and thus be able to help the local vendors also by increasing their demand. All the stores nearby are arranged in order of geolocation [9].

Utilizing the geo-mapping [9] technology we enable the local and most close shops in terms of proximity to get the priority and also be placed at the very first place in the listing that will be visible for consumers.

From this page itself the users can choose to either open the inventory and check the products available at the store and they can also choose to see the map exactly on the map so as to get a clearer depiction about how far the store is if the consumer decides to go for self-pickup.

### 5.1 All Items

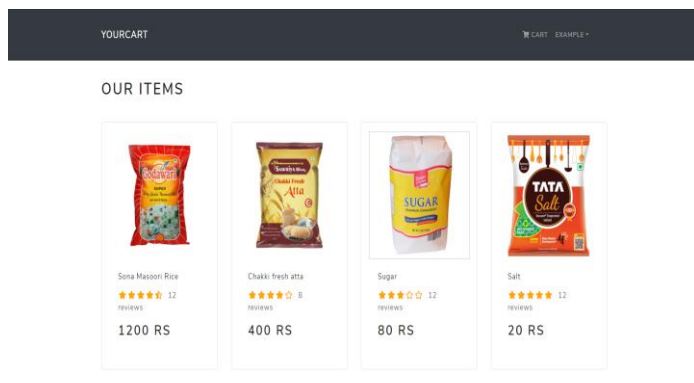


Fig -3: List of items in the selected stores

Once any of the stores is selected the users will be able to see all the items and their prices the shop owner can also select to keep discounts on select items.

All the stock that is available at the store will be updated dynamically making sure that there is always a display of the products that are in stock and available for delivery.

Along with the product display and cost it has a rating system that has been given by the previous verified buyers of the product which should promote sales of new yet quality products that are available at a competitive price.

### 5.2 Item Description

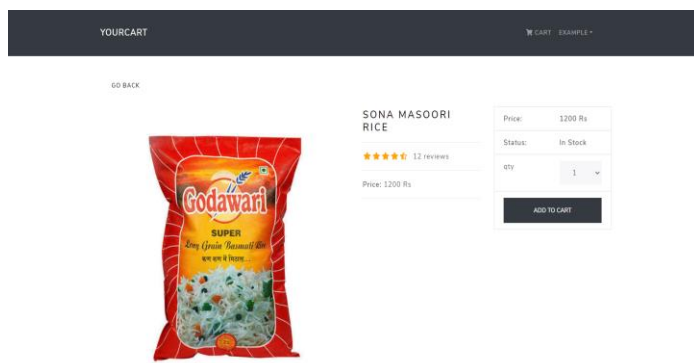


Fig -4: Item Description

Once An item is selected it's entire description along with price and option for the user to select the quantity and review of the product and then can also get the information such as in-stock or not in-stock. Here the shop owner/admin will be given an opportunity to add in their own description if necessary and also they can select a few items that are special or mark them as new.

### 5.3 Your Cart

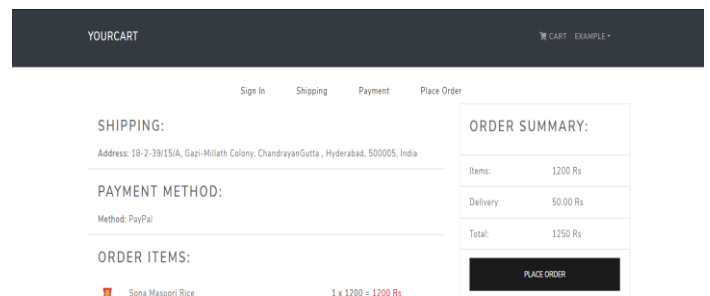


Fig -4: Cart

Once all the items are selected the final order is shown along with total cost along with the option to either select self pickup or select 3rd party[1] delivery options. As a vision for future versions we expect to integrate the api of apps such as Uber[6],Dunzo[1],Rapido[7] which should bring in both ease to the consumers and business to the third party partner brands[2].

If the consumer selects self-pickup they will be notified once the packaging of their order so as to prevent unnecessary crowding at the shops.

### 5.4 Shipping or Self Pick-up

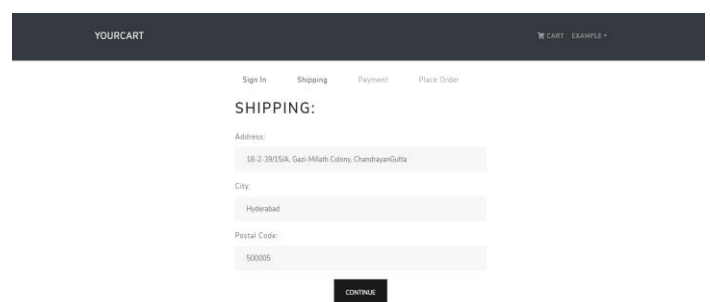


Fig -6: Delivery page

Users can now enter their delivery address and ask for final confirmation before payment gateway. This area is used so that the consumers that choose to go by delivery option can enter their address despite the need for creating an account on the web app. If at all the users decide to self-pickup the order this page will not be visible for them.

### 5.5 Payment

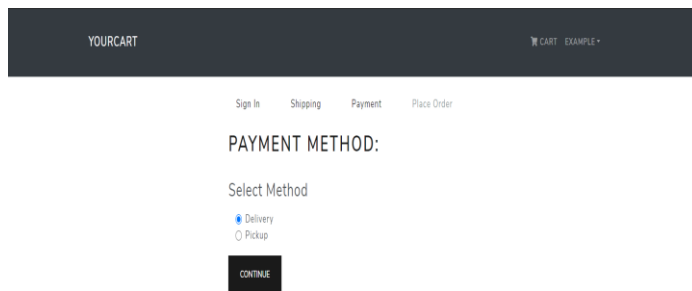


Fig -7: Payment Gateway

This page is the final page in the process of completing the purchase.

### 5.6 Admin/Shop Owner Verification

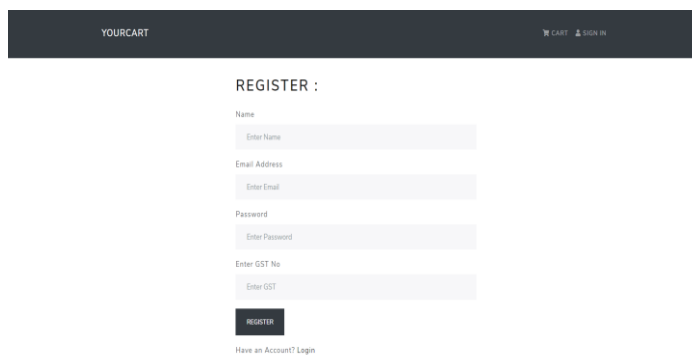


Fig -8: Shop Owner Registration

All the shop owners are required to give basic information such as name, gst registration number and can register themselves if not registered prior. If already existing owner they can directly enter their GST number.

### 5.7 Owner Inventory Update

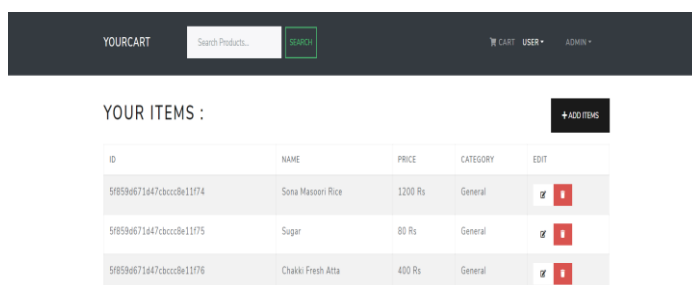


Fig -9: Inventory Control

The owners can then select to either add items and can delete items and can append items rate, brand name, quantity, category [4].

All the items will also be given a unique id that will be automatically generated which the admins can edit so as per their requirements which aims to provide better inventory control and to better track the future requirements. The id will be generated for each item the admins/shop owners can give similar ids to similar products from different brands.

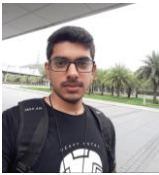
### 6. Conclusion and Future Work

In this paper, a framework was proposed with the twin objectives of helping local businesses and customers in the Indian scenario. This framework was implemented in the form of a web application which can be easily downloaded. Major functionalities of this web app have already been implemented. In the future, we intend to tie up with delivery services like Dunzo and Rapido to make door delivery possible. It is also intended to conduct a pilot study by implementing this application in a small sample neighborhood of stores.

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## BIOGRAPHIES



Sampath Kumar Gottumukkala is interning at Thapos Software Pvt Ltd and he is a research student at Muffakham Jah College of Engineering and Technology, Hyderabad. He is a part of research and development team at college. He has done research projects in NLP, Artificial Intelligence, Computer vision and Machine Learning.



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