Task analysis

Digital Solution for Blind and Visually Challenged Individuals

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### User tasks inside the app

#### Creating the shopping list

One of the initial tasks at the user’s disposal is the creation of a shopping list. When the user decides it is ready to begin their shopping journey, they can kick start the process by generating a new list and then proceed with various related, smaller tasks.

#### Choosing the shop

After opting to initiate a shopping list, users are prompted to designate a store where they intend to find the items. This step serves a practical purpose, as it ensures that if a particular shop lacks any of the required items, the user will receive a timely notification.

To enhance the user convenience, the selection of the store can be based on either its proximity in terms of walking distance from the user’s current location or their residence. This consideration acknowledges the potential challenges visually impaired and blind individuals might face when it comes to walking to and from the store.

Recognizing that the shopping experience can be both lengthy and physically demanding, our aim is to streamline the process, making it not only accessible, but also enjoyable for all users.

#### Be notified about the current sales in the shop you have selected

Once users have selected their preferred store, they will also have the option to receive updates about ongoing or weekly sales within that store. This feature serves to revolutionize how our targeted users engage with sales information, aiding them in both staying updated on potential savings and managing their finances more effectively.

It’s important to note that this step is not obligatory within our progran’s workflow, but rather an optional add-on. When users listen to the sales announcements, they can further decide whether they wish to incorporate any items from the sales list into their shopping list, granting them greater control and flexibility in their shopping experience.

#### Managing the shopping list

Following the creation of the shopping list, users have the option to engage in smaller yet crucial tasks involving list management. This entails the capacity to add items, change their attributes, and ensure an efficient shopping experience.

Adding items to the shopping list is made user-friendly through voice commands, particularly beneficial for those who are visually impaired or blind. users can specify details such as the brand (e.g., Coca-Cola), item type(e.g., soda, rice, etc.), size (e.g., 2l, 500mk, 330ml etc. for sodas) or weight (in grams or kilograms for other weighted items). Each interaction throughout the shopping journey unfolds as a fluid and intuitive conversation.

Furthermore, users retain the flexibility to edit various criteria for items already included in the shopping list. For instance, if they decide they’d prefer a can of soda over a 2l bottle, they can easily modify the relevant information during their list review.

Additionally, during the list review process, users can conveniently remove one item at a time, allowing for quick adjustments if they decide an item is no longer necessary.

#### Verifying the shopping list

Once the user has completed their shopping list and added all the necessary items, they have the option to verify it. This process involves the program audibly enumerating all the listed items, including the size and quantity. During the verification stage, users can decide whether they want to make any adjustments to various aspects of each item within the list. Following the verification, users also have the option to calculate the total expected price for the specific list.

#### Choosing delivery or pick up option

Once all the preceding tasks have been successfully accomplished, and the user has completed their shopping list, verified its accuracy, and confirmed that no further changes are needed, they are presented with three distinct options.

The user can opt for home delivery in which a delivery person will promptly bring the items to their doorstep. Alternatively, they can choose to collect the items at the store, where an in-store worker will have them ready for pick-up. If they select the in-store pick-up option, they can further decide whether they prefer to walk to the store or use a taxi service for the journey, allowing for a seamless continuation of their shopping experience.

#### Be guided to the shop by the means of an Uber

After creating the ideal shopping list and selecting the perfect store, our visually impaired or blind users can have the complete shopping experience by being directed to their chosen store. How? They have the option to request an Uber, which takes them to the destination. When the uber arrives at their location, a beeping sound will notify the users that their ride is ready and waiting for them.

#### Walking to certain aisles

Our users have the chance to physically place their products into the shopping cart while navigating through the store. Once the users confirm the list and arrive at the chosen store, a customized path will be generated for them. The path will consider their specified products and guide them with spoken instructions (similar to Google Maps voice navigation) to each item.

Furthermore, visually impaired individuals can visualize a map representation of the path. To enhance their understanding and make the shopping activity easier for them, different categories will be color-coded (e.g., green for vegetables, red for meat, etc.).

#### Checking items with camera

Even though our users are effectively guided to the desired products, their visual impairment may not provide them with the assurance that they put the correct items into their baskets. To address this problem, they can utilize a camera and receive vocalized confirmation.

How does this work? With this feature, the users can move the camera around the designated aisle, and when the camera captures an image of the correct product, they will hear its name announced.

This process repeats for each item, ensuring them that they confidently add the right products to the shopping cart.

#### Adding products as you walk around the shop

We have all experienced situations where we wanted to buy additional items beyond what was initially on our list, either because we forgot something we needed or new ideas suddenly came to mind.

After adding the initial items to the shopping cart, our application allows users to supplement their existing lists with more products. The process remains the same as described before: they can add new items or modify the items, essentially “creating” a new list. After this, they continue to navigate through the store using the same approach as before.

This feature allows users to enjoy a shopping experience that is more similar to that of sighted individuals, relieving the stress of having to include all necessary items from the very beginning.

#### Asking for help

As we are all aware, using an application can be challenging at times, and some may not be particularly proficient with technology. Now, imagine how much more challenging this can be for individuals who are blind or visually impaired, especially when they are already dealing with real-life obstacles. This feature can be used in two different contexts described below:

* In the beginning, users have the option to request assistance during the initial stages of creating and managing their lists. If needed, they will enter a call with a qualified employee who will provide guidance for any issues they encounter.
* Later, to prevent them from getting lost in a store, mainly if the navigation becomes difficult or problems arise, they still have the option to seek assistance directly from the application. In such cases, an authorized and trained employee will physically come to them to provide help and support.

#### Manage payment: via already existing payment details or physically

Once the users have successfully completed the path, collected the items and do not require additional ones, they proceed to make a payment for the products. Our app offers two payment methods: they can pay electronically using their pre-saved card details within the application, or they can opt for a physical payment with cash or card, with assistance from a trusted employee who ensures the correct amount is paid and provides change if needed.

An important aspect to specify is that the application calculates the total amount and communicates it to the user before the payment step, ensuring they are aware of the exact payment amount.