### Chapter 4 Software Requirement Specifications

The” Smart Delivery” project’s Software Requirement Specifications (SRS) chapter explains the specific needs, functions, and design facets of the system. It makes sure that both technical and non-technical readers can understand the system’s requirements, enabling them to duplicate or improve the system based on the given information.

### 4.1 List of Features

The features of our software are

1. Reserve compartment for sending a parcel
2. Select compartment for receiving parcel
3. Track parcel delivery
4. Cancel compartment reservation by sender
5. Edit compartment reservation by receiver
6. Receive parcel by rider
7. Receive parcel by receiver
8. Placement of Parcel by sender
9. Placement of Parcel by rider
10. Reschedule delivery
11. Add new delivery box
12. Edit details of existing delivery box
13. Remove existing delivery box

### 4.2 Functional Requirements

#### 4.2.1 Admin functionality

1. The system shall allow Admin to add new delivery boxes.
2. The system shall allow Admin to remove existing delivery boxes.
3. The system shall allow Admin to edit details of existing delivery boxes.

#### 4.2.2 Systems automated Functionality

1. This information system shall gather package details from service providers (SP).
   1. The system shall provide API to be called by the SP to provide package details for distribution
      1. The system shall be able to refresh its list of packages to be delivered whenever SP calls API to send details.
2. The system shall prepare a list of available boxes based on the state of the boxes’ compartments
   1. The system shall process the information of categories/compartments (Large, Medium, Small) of delivery box
   2. The system shall prepare the queue of delivery boxes with empty compartments that matches the requirements of parcel.
      1. The system shall allow only those parcel that matches dimensions and weight bearing capacity of compartments of delivery box
3. The system shall send notification to receiver to select his preferred delivery box within 5 hours.
   1. The system shall send notification at 9am when the business day starts and will wait for 5 hours to get preference.
4. The system shall assign a delivery box after waiting for 5 hours if receiver does not send his choice within 5 hours.
   1. The system shall revoke the right to select delivery box from receiver. (b) The system shall assign a delivery box that is top in queue of QFC.
5. The system shall prepare the list of reserving delivery boxes’ compartments
   1. The system shall reserve the compartment in the suggested delivery box by changing its state from empty to reserved.
   2. The system shall add the preferred compartment to list of reserved compartments of delivery box.
6. The system shall prepare list of received parcels by sender
   1. The system shall put information of parcel by sender in the queue of QIC after the placement of parcel in compartment of delivery box.
   2. The system shall prepare the list of parcels to be picked by SP to deliver at the destination

delivery box.

1. The system shall cancel reservation of compartment done by sender
   1. After 5 hours, reservation of compartment will be revoked, and sender will be notified
2. The system shall allow SP to get an updated list of parcels to pick up sent by sender for delivery.
   1. The system shall provide API to be called by SP for getting updated list of parcels to deliver.
3. The system shall notify the receiver when the parcel will be delivered to the respective delivery box.
4. The system shall send OTP to SP, receiver and sender
   1. The system shall send OTP to sender only if he is sending parcel through delivery box after when he will reserve the compartment for 5 hours.
   2. The system shall send OTP to receiver only after the placement of parcel in the respective delivery box’s compartment.
   3. The system shall send OTP to SP for picking-up and delivering parcel time
      1. The system shall send OTP to SP after placement of parcel in delivery box’s compartment by the sender.
      2. The system shall send OTP to SP after the finalization of destination delivery box’s compartment
5. The system shall update the state of delivery boxes after their state is changed.
6. The system shall revoke the right from receiver to take parcel from delivery box.
   1. The system shall notify the receiver if he does not take parcel form delivery box for 2 days excluding the day when the parcel was delivered
      1. The system shall prepare the queue of unpicked parcels (QUP) (parcels not received by

receiver)

1. The system shall prepare list of unpicked items by receiver
   1. The system shall put the unpicked items’ details in queue of failed delivery Parcels (QFDP) if not picked within defined time which is maximum 3 days
   2. The SP shall handle the delivery of failed delivery parcels according to their policies.

#### 4.2.3 Sender and Receiver Functionality

1. The system shall allow the receiver to give his preferred delivery box within 5 hours after notification received.
   1. The system shall allow the receiver to view a list of available delivery boxes.
2. The system shall allow the receiver to take his parcel by getting OTP as input.
3. The system shall allow receivers to reschedule their delivery within 1 day of revocation of delivery. (a) The system shall allow receivers to pick up their parcels by giving 1 extra day.

(b) The system shall not allow receivers to reschedule their delivery if they do not schedule their delivery within 1 day.

1. The system shall allow receiver to edit the reserved compartment within 1 hour of reservation.
2. The system shall allow senders to send parcels through delivery boxes
   1. The system shall allow sender to search for available delivery boxes by entering his required

details.

* 1. The system shall allow senders to temporarily reserve the required compartment in the delivery box for 5 hours.

1. The system shall allow senders to cancel the reserved compartment within 5 hours of reservation.
2. The system shall provide feature of parcel tracking to senders and receivers
   1. The system shall show all the staying points in the delivery process and shall indicate the parcel on specific point at which it will be.

#### 4.2.4 Service Provider Functionality

1. The system shall update about selected delivery boxes to the SP warehouse
   1. The system shall provide API to be called by SP to get list of reserved compartments of delivery boxes
2. The system shall update the SP about unpicked parcels
   1. The system shall provide API to be called by the SP for fetching QUP
3. The system shall provide API to SP to get updated list of failed attempts (QFDP

### 4.3 Quality Attributes

The Quality Attributes are

#### 4.3.1 Performance

System will perform effectively so that user will not feel any issue. It will be fast and quick in response.

(NFR 2)

4.3.2 Usability

System will be easy to use and understand (NFR 3)

4.3.3 Security

Crucial data of user will be protected end-to-end for security from threats and risks. (NFR 7)

#### 4.3.4 Maintenance

There will be no issue in maintaining any module of the system. Users will be notified about maintenance time for that user might not be able to use system. (NFR 4)

#### 4.3.5 Compatibility

There will be no compatibility issue for user in terms of supporting and for SPs in terms of integration.

(NFR 10 and 6)

4.3.6 Responsiveness

The system will be easy to navigate for all users and will be intuitive to understand. (NFR 9)

### 4.4 Non-Functional Requirements

This section will be discussing non-functional requirements for the different entities of our project

” Smart Delivery”

#### 4.4.1 Availability

System shall be available on the internet for easy access in time other than maintenance time reported via notification

#### 4.4.2 Performance

System shall response within 5-10 seconds of request

4.4.3 Usability system shall be easy to use for anyone who can browse things easily

4.4.4 Maintainability

System shall be available within time given to user when it will go offline due to any reason

4.4.5 Testability

System shall be testable during whole phase of development

4.4.6 Compatibility

System shall be compatibility with the system of SPs

4.4.7 Security

Important data such OTP that involves risks or vulnerability shall be encrypted end-to-end.

4.4.8 Reliability

System shall not face critical failure when it is available.

4.4.9 Responsiveness

System shall be responsive for all devices including laptop, mobile, and tablet.

4.4.10 Portability

System shall be able to work on all operating systems that will support chrome, edge, or safari.

### 4.5 Assumptions

* The delivery box we are expecting with minimum functionalities is available in the market.
* The working system of SP can be integrated with this system.
* The embedded system of the delivery box can easily be integrated with this system.
* The delivery box is connected with internet 24/7.
* The users must have knowledge of browsing over the internet.
* The users will be connected to the internet when using the internet.
* The sender will place the item in the locker before closing the locker.
* The receiver will take out the item before closing the locker.