Software Requirements Specification (SRS) Document

Project: Inventory Management System for Malkha
Last updated: 11.03.2022
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Brief problem statement

Malkha is a Non-governmental Organisation which works to uplift the handloom weavers. Handloom sector is run by people in rural areas who aren't tech savvy. Handloom has been made an organised sector by the government; however, the weavers find it difficult to be organised. Weavers and farmers struggle to fill GST returns which is required for a formal sector economy.

Currently the inventory is managed separately at the different steps (spinning, dyeing and weaving). The requirement is to integrate the inventory management of all the processes

There is a lot of imitation by power-looms of handloom cloth. Power-loom textile being much cheaper, crushes the handloom industry. Buyers are fooled into believing that the power-loom textile is handloom. Hence, a method for authentication must be introduced.

System requirements

1. IDEs/Text Editors
    a. Visual Studio Code
2. Collaboration Tools
    a. WhatsApp
    b. Google Meet
    c. GitLab
    d. Microsoft Teams
3. Programming Languages + Technologies
    a. MERN stack (Mongo DB, Express, React, Node JS)

Users' profile

The users can be classified based on whether they are involved in making the product (the Malkha textile) or whether they are the customer.

- **Product Side**
    - **Spinning**: Happens in the spinning mills. There is only 1 spinning mill associated with the Malkha weavers, and there is possible plan of increasing it to two.
    - **Dyeing**: There is one dyeing unit and no plans of increasing currently.
    - **Weaving**: The weavers are decentralised. It doesn't happen under one roof unlike spinning and dyeing.

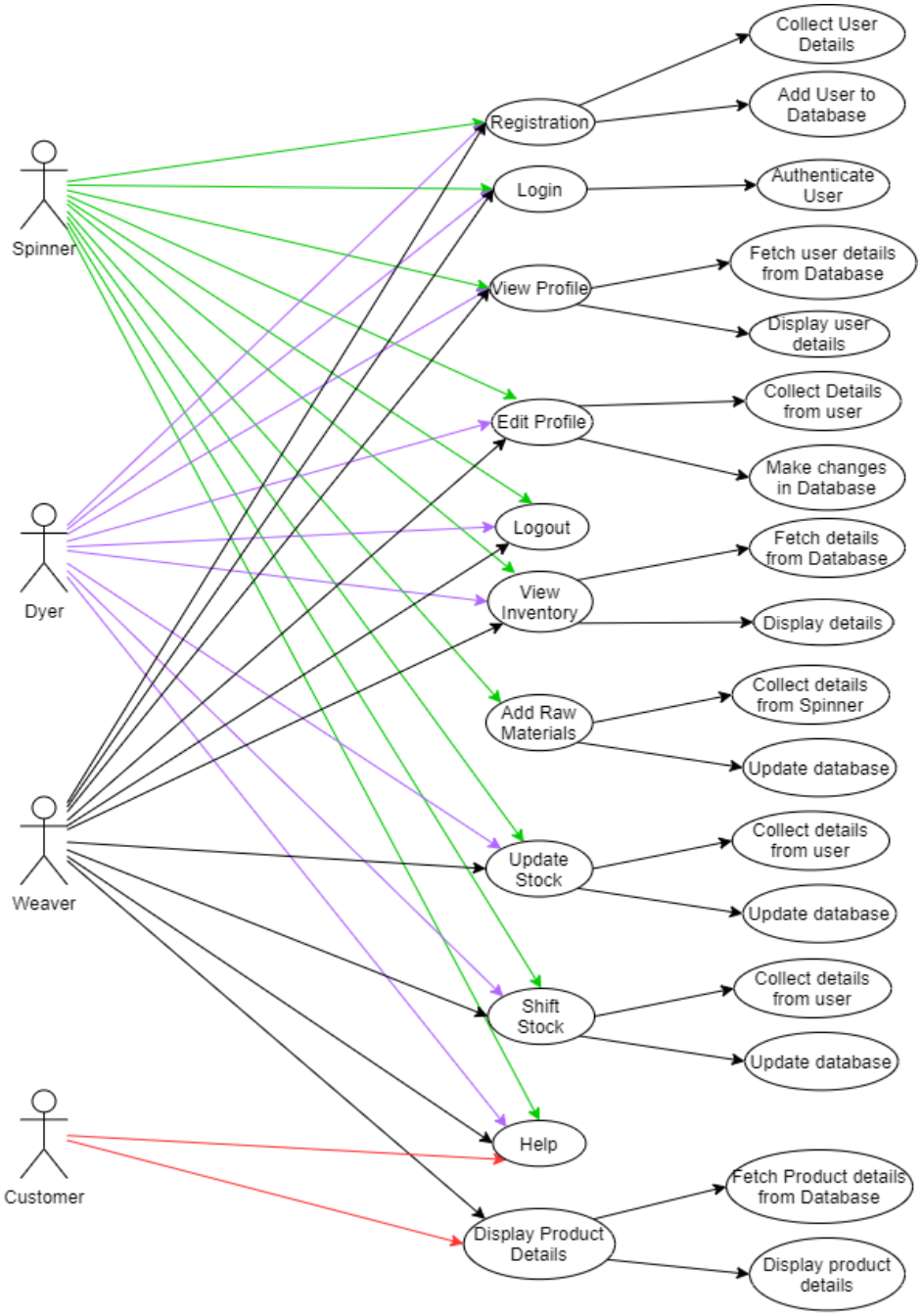
  Most of these processes involve rural people who have less technological knowledge. They may not have strong access to the internet. The application must be accessible from both a smartphone and a computer.
- **Customer side**. Just a simple interface showing the authenticity of the product. Not many functionalities are expected. The customer must be able to access it from both a smartphone and a computer.

Feature requirements (described using use cases)

No.	User Case Name	Description	Release
1.	Registration	A common registration page for the new users. This page will be common for Spinners, dyers and weavers. Not applicable to customers. Ask details from the user and create account. Save details in the database.	R1
2.	Login	A common login page for the new users. This page will be common for Spinners, dyers and weavers. Not applicable to customers. Authenticate if the user has an account.	R1
3.	View profile	Display the profile details of the user.	R1
4.	Edit Profile	Allow the user to edit some details.	R1
5.	Log Out	Allow the user to logout of the page.	R1
6.	View inventory	The user can view the stock of the items which they have currently.	R2
7.	Add raw items	This is available only for the spinner. The spinner adds the amount of raw cotton he has procured.	R2
8.	Update stock	This allows the user to update the stock of the finished product (of this stage) and update the amount of raw material used. (example: Spinner can update amount of yarn produced and the amount of cotton used)	R2
9.	Shift stock	This allows the user to shift the stock of products (of that stage) to the next stage (where it would be raw material). (example: spinner can shift the yarn to the	R2

		dyer. This should reduce the stock of yarn with spinner and increase stock of raw material (yarn) of dyer).	
10.	Help	Provide contact information of Malkha	R1
11.	Display Product details	Display details of the weaver, dyer and spinner involved in making that fabric.	R2

Use case diagram



Use case description

Use Case Number:	UC-1
Use Case Name:	Registration
Overview:	A common registration page for the new users. This page will be common for Spinners, dyers and weavers. Not applicable to customers. Ask details from the user and create account. Save details in the database.
Actors:	Spinner Dyer Weaver
Pre condition:	Starting state
Flow:	Main (success) Flow: 1. Collect data from user. (Details mentioned in 'Users Database details' section below) 2. Create account and store in database. 3. Take user to user dashboard.
	Alternate Flows: 1. If user account pre-exists: Go to Login Page. 2. If insufficient details/ unexpected details: Alert and Stay in registration page.
Post Condition:	User has an account. User is either spinner, dyer or weaver.

Use Case Number:	UC-2
Use Case Name:	Login
Overview:	A common login page for the new users. This page will be common for Spinners, dyers and weavers. Not applicable to customers. Authenticate if the user has an account.
Actors:	Spinner Dyer Weaver
Pre condition:	Starting state

Flow:	Main (success) Flow: 1. Collect data from user and authenticate if account exists. 2. Take user to user dashboard.
	Alternate Flows: 1. If user account doesn't exist: Go to Registration Page. 2. If incorrect credentials: Alert and stay in Login page.
Post Condition:	User has an account. User is either spinner, dyer or weaver.

Use Case Number:	UC-3
Use Case Name:	View Profile
Overview:	Display the profile details of the user.
Actors:	Spinner Dyer Weaver
Pre condition:	User has an account and is logged in. Click View Profile tab.
Flow:	Main (success) Flow: 1. Display User details. (Details mentioned in 'Users Database details' section below)
	Alternate Flows: None
Post Condition:	User has an account. User is either spinner, dyer or weaver. User is logged in.

Use Case Number:	UC-4
Use Case Name:	Edit Profile
Overview:	Allow the user to edit some details.
Actors:	Spinner Dyer Weaver

Pre condition:	User has an account and is logged in. Click Edit Profile button.
Flow:	Main (success) Flow: 1. Collect user details. (Details mentioned in 'Users Database details' section below) 2. Update database.
	Alternate Flows: 1. If unexpected data entered: Alert and stay on edit profile page.
Post Condition:	User has an account. User is either spinner, dyer or weaver. User is logged in.

Use Case Number:	UC-5
Use Case Name:	Logout
Overview:	Allow the user to logout of the page.
Actors:	Spinner Dyer Weaver
Pre condition:	User has an account and is logged in. Click Logout Button.
Flow:	Main (success) Flow: 1. Logout the user.
	Alternate Flows: None
Post Condition:	User isn't logged in anymore.

Use Case Number:	UC-6
Use Case Name:	View Inventory
Overview:	The user can view the stock of the items which they have currently.
Actors:	Spinner Dyer Weaver

Pre condition:	User has an account and is logged in. Click View Inventory tab.
Flow:	Main (success) Flow: 1. Retrieve inventory data from the database and display. (Details of inventory mentioned below in 'inventory details' section)
	Alternate Flows: None
Post Condition:	User has an account. User is either spinner, dyer or weaver. User is logged in.

Use Case Number:	UC-7
Use Case Name:	Add Raw materials
Overview:	This is available only for the spinner. The spinner adds the amount of raw cotton he has procured.
Actors:	Spinner
Pre condition:	User is a spinner and has an account and is logged in. Click add raw materials tab.
Flow:	Main (success) Flow: 1. Collect data from user and update in database.
	Alternate Flows: None
Post Condition:	User has an account. User is a spinner. User is logged in.

Use Case Number:	UC-8
Use Case Name:	Update Stock
Overview:	This allows the user to update the stock of the finished product (of this stage) and update the amount of raw material used. (example: Spinner can update amount of yarn produced and the amount of cotton used)
Actors:	Spinner Dyer Weaver
Pre condition:	User has an account and is logged in. Click Update Stock tab.

Flow:	Main (success) Flow: 1. Collect data from user and update in database. (Details mentioned in 'Inventory details' section below)
	Alternate Flows: None
Post Condition:	User has an account. User is a spinner, dyer or weaver. User is logged in.

Use Case Number:	UC-9
Use Case Name:	Shift Stock
Overview:	This allows the user to shift the stock of products (of that stage) to the next stage (where it would be raw material). (example: spinner can shift the yarn to the dyer. This should reduce the stock of yarn with spinner and increase stock of raw material (yarn) of dyer).
Actors:	Spinner Dyer Weaver
Pre condition:	User has an account and is logged in. Click Shift Stock tab.
Flow:	Main (success) Flow: 1. Collect data from user and update in database. (Details mentioned in 'Inventory details' section below)
	Alternate Flows: None
Post Condition:	User has an account. User is a spinner, dyer or weaver. User is logged in.

Use Case Number:	UC-10
Use Case Name:	Help
Overview:	Provide contact information of Malkha
Actors:	Spinner Dyer Weaver

	Customer
Pre condition:	User clicks Help tab.
Flow:	Main (success) Flow: 1. Display help contacts.
	Alternate Flows: None
Post Condition:	None

Use Case Number:	UC-11
Use Case Name:	Display Product details
Overview:	Display details of the weaver, dyer and spinner involved in making that fabric.
Actors:	Spinner Dyer Weaver Customer
Pre condition:	User has product code.
Flow:	Main (success) Flow: 1. Collect product code from user. 2. Display product details. (Details mentioned in 'Product details' section below)
	Alternate Flows: None
Post Condition:	None

Users Database Details:

The details which will be stored and collected about the different users

1. Spinner:
   a. Name of Spinning company. (The inventory is managed by a representative in the company, not individually by the spinners).
   b. Contact Number
   c. Email-ID

d. Manager Name
e. Date of Joining
f. Address

2. Dyer:
   a. Name of dyeing company.
   b. Contact Number
   c. Email-ID
   d. Manager Name
   e. Date of Joining
   f. Address

3. Weaver:
   a. Name of weaver (Inventory updated individually by the weavers – decentralised).
   b. Contact Number
   c. Email-ID
   d. Address

   Alternatively, Malkha can handle the inventory for the weavers as it does now, until a time they feel the weavers can handle it on their own. In this case, the details would be:

   a. Name of weaving company.
   b. Contact Number
   c. Email-ID
   d. Manager Name
   e. Date of Joining
   f. Address

Inventory Details:

Spinner: The Length of a ball of yarn is standardised. The thickness of the yarn is measured in count. Count is inversely proportional to the thickness. When the yarn is prepared and stored, it is stored in bundles/groups/packages of yarn. Each hank of yarn in this package has the same properties and hence, no indexing of each hank is required. Details maintained by the spinner for each package of yarn:

- Quantity of raw cotton present.
- Name of spinner
- Count number of yarn
- Twist number of yarn
- Date of preparation (completion)
- Origin of cotton and yarn type (Qualitative features)

Dyer: The packages of yarn received from the spinner will be dyed. The dyer colours different yarns of the package in different colours, but ultimately stores and dispatches in the same packages. Details added by the Dyer for the package:

- Quantity of yarn procured (un-coloured) from the Spinner (with details of the yarn as collected in spinning process)
- Colour IDs and quantity of each colour
- Name of dyer
- Count number of yarn (not really measured. Just for verification)
- Twist number of yarn (not really measured. Just for verification)
- Date of dyeing
- Optional information about special treatments to the yarn
- All the information saved by spinner are retained and relevant.

Weaver: Receives package of dyed yarn and uses different yarns to produce a *thaan* of fabric (a piece of fabric). A *thaan* of fabric is usually prepared with yarns all belonging to the same package. Each *thaan* will be uniquely barcoded. The length of a *thaan* is not fixed but attempts are being made to standardise it. Details maintained by the weaver for each *thaan*:

- Fabric barcode (unique)
- Name of weaver
- Date of completion
- Package number of the yarn.
- Length of fabric

Hence, overall, the details which each fabric will have are:

- Name of spinner
- Count number of yarn
- Twist number of yarn
- Date of Spinning
- Origin of cotton and yarn type (Qualitative features)
- Colour IDs and quantity of each colour
- Name of dyer
- Date of dyeing
- Optional information about special treatments to the yarn
- Package number of the yarn.
- Fabric barcode (unique)
- Name of weaver
- Date of completion
- Length of fabric

Product Details

The details which the customer can view finally on scanning the barcode will be the details which are finally stored after weaving.

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