Technical Requirements Document (TRD) - Bongshal Multivendor E-commerce Platform

Disclaimer: The features for TRD are documented based on our discussion. Please review and verify the features. Time estimations may vary once actual work begins. This document is created to provide a preliminary understanding, and it is not final..

1. Introduction

1.1 Overview

Bongshal, a specialized multivendor e-commerce platform tailored for the motorcycle parts industry, is presented in this Technical Requirements Document (TRD). The document outlines the technical specifications and requirements necessary for the platform's successful development and implementation.

1.2 Purpose

The purpose of this TRD is to provide explicit guidance on the technology stack, integration points, security measures, and other technical aspects crucial for the effective development and operation of the Bongshal platform.

2. System Architecture

2.1 Platform Type

Bongshal will be developed as a web-based platform accessible through standard web browsers and an Android app.

2.2 Technology Stack

2.2.1 Frontend

- HTML, CSS, JavaScript
- Framework: JQuery
- Responsive Design: Compatibility across various devices

2.2.2 Backend

- Framework: PHP (Laravel)
- Database: MySQL or PostgreSQL
- API Design: RESTful APIs for frontend-backend communication

2.2.3 Hosting

- Cloud Services: Digital Ocean or similar for scalability and reliability
- Deployment: CI/CD pipelines for continuous integration and deployment

2.3 Integration Points

2.3.1 Payment Integration

- Implement secure payment methods.
- Integrate with Bkash for payment processing.

2.3.2 Video Integration

- Use Vimeo integration for video hosting.
- Allow external video storage via FTP servers.

2.3.3 Data Import

- Implement data import functionality for products, orders, and customers from existing sites.

2.3.4 SMS and Email Integration

- Integrate SMS and email gateways for marketing and communication.

2.3.5 Delivery Partner Integration

- Integrate with Pathao, Streadfirst for delivery partners.

3. Database Design

3.1 Database Schema

- Design a normalized database schema for efficient data storage.
- Ensure well-defined relationships between entities (e.g., customers, products, orders).

3.2 Data Import

- Develop data import functionality for products, orders, and customer data.

4. Lead Collection/Inquiry System

4.1 Lead Collection

- Enable lead acquisition through customer calls, Facebook, WhatsApp, and website contacts.
- Gather customer details, including name, location, and motorcycle brand.
- Use a unique mobile number as the primary identifier.
- Aggregate information associated with the provided mobile number using specialized software.
- Implement a CRUD system for managing leads.
- Facilitate lead export/import.

4.2 Customer Inquiry

- Allow customers to submit inquiries expressing their need for specific motorcycle parts.
- Support image attachments with inquiries.
- Enable the support team to receive, review, and categorize inquiries.
- Facilitate engagement with field personnel for gathering vendor details, sale prices, and product options.
- Provide tools to generate quotations based on gathered information.

- Assist customers in placing orders once they select desired products.

4.3 User Characteristics

- The system is designed for Bangshal's support team for lead collection and customers seeking motorcycle parts information.

4.4 Constraints

- Compliance with data protection regulations.
- Availability of internet connectivity for online channels.

5. Product Management

5.1 Multimedia Product Display

- Develop a media management system for video and image uploads.

5.2 Discount and Coupon/Voucher System

- Design and implement a discount and coupon/voucher system.

5.3 Referral System

- Create a referral system with unique identifiers for garage owners, individuals, and vendors.

6. Order Management

6.1 Payment Integration

- Integrate secure payment gateways.

6.2 Ledger System

- Design a ledger system for basic income and expense tracking.

7. Staff Management

7.1 Attendance and Location Tracking

- Implement attendance tracking through a physical device and Android app.
- Integrate location tracking functionality.

7.2 Leave Management and Incentive/Penalty

- Develop a leave management system.
- Implement incentive and penalty mechanisms.

7.3 Salary Management

- Design a salary management system for office staff.

8. Vendor Management

8.1 Payment and Commission Settings

- Develop payment and commission settings modules.
- Implement commission calculation logic.

8.2 Withdrawal Strategy

- Design and implement a withdrawal strategy with defined waiting periods and mediums.

9. User Authentication and Security

9.1 Login System

- Implement secure login methods, including email, Google, Facebook, and SMS.
- Design a secure signup and password recovery system.

9.2 Session Management

- Configure session management for long login intervals and automatic logout.
- Implement ACL based on user roles for fine-grained access control.

10. Marketing

10.1 Marketing Channels

- Integrate SMS, email, and app notification services for marketing.

10.2 Referral System

- Implement a referral system with tracking and rewards.

11. SOS Setting

11.1 Location-based SOS

- Design a location-based SOS system with CRUD functionality.
- Implement paid SOS services with direct calling.
- Include points and reward systems.

12. Blog Management

12.1 ACL and Customer Rewards

- Develop ACL for blog editing.
- Implement customer rewards for blog contributions.

13. Bkash Cash/App Discount

13.1 Integration

- Integrate Bkash for cash/app discounts.

14. Video Integration

14.1 Vimeo Integration

- Integrate Vimeo for video hosting.
- Develop external video storage through FTP server integration.

15. Data Import

15.1 Import from Existing Site

- Develop import functionality for product, order, and customer data.

16. Garage Management

16.1 Self/Other Customer Registration

- Design registration forms for self and other customers.
- Implement B2B functionality.

16.2 Recognition System

- Develop a recognition system for featured, standard, and badge garages.

17. Basic E-commerce Features

- [List of features as listed below]

18. Vendor Physical Store Management

18.1 Customized Format

- Implement a system for managing the physical store of vendors based on a provided format.

19. Security Considerations

19.1 Encryption

- Implement data encryption for sensitive information.
- Ensure secure communication protocols (HTTPS).

19.2 Authorization and Authentication

- Enforce proper authorization and authentication mechanisms.
- Implement role-based access control (RBAC).

20. Native Mobile App

20.1 Android App
Full fledged Android app with same features as web

20.2 iOS App
Full fledged iOS app with same features as web

20.3 API
Developed API communication for Web and Native app

21. Testing

21.1 Unit Testing

- Conduct unit testing for individual components.

21.2 Integration Testing

- Perform integration testing to validate interactions between components.

21.3 User Acceptance Testing (UAT)

- Engage stakeholders for UAT to ensure functionality aligns with business requirements.

22. Documentation

22.1 Code Documentation

- Provide comprehensive code documentation for developers.
- Include inline comments for better code understanding.

22.2 User Manuals

- Develop user manuals for platform users.
- Include FAQs and troubleshooting guides.

23. Deployment

23.1 Deployment Environment

- Choose a suitable deployment environment (Digital Ocean, AWS, Google Cloud, etc.).
- Implement a continuous integration/continuous deployment (CI/CD) pipeline.

23.2 Scalability

- Design the system architecture to be scalable for potential future growth.

Basic Ecommerce features also included

Homepage:
- Display featured products.
- Highlight promotions and special offers.

Product Listings:
- Categorize products for easy navigation.
- Include product images, names, and prices.

Product Pages:
- Provide detailed information about each product.
- Include product images, descriptions, specifications, and customer reviews.

Shopping Cart:
- Allow users to add/remove items.
- Display the total price and quantity.
- Provide a clear checkout button.

Checkout Process:
- Gather shipping and billing information.
- Provide order summary and total cost.
- Include multiple payment options.

User Accounts:
- Enable user registration and login.
- Save order history and preferences.

Search and Filters:
- Implement robust search functionality.
- Allow users to filter products by category, price, brand, etc.

Responsive Design:
- Ensure the website is mobile-friendly.
- Adapt to different screen sizes.

Customer Support:

- Include contact information.
- Offer live chat or chat bot support.

Reviews and Ratings:
- Allow customers to leave reviews.
- Display product ratings.

Promotions and Discounts:
- Implement discount codes.
- Highlight ongoing promotions.

Social Media Integration:
- Allow users to share products on social media.
- Display social media feeds.

Analytics and Reporting:
- Implement tools to track user behavior.
- Generate reports on sales, traffic, etc.

Shipping and Logistics:
- Provide shipping options and costs.
- Integrate with shipping carriers for real-time tracking.

Legal and Compliance:
- Include terms and conditions.
- Comply with e-commerce laws and regulations.

Content Management System (CMS):
- Manage website content easily.
- Update product information and images.

Newsletter Subscription:
- Allow users to subscribe to newsletters.
- Send updates on new products and promotions.

Basic Entity list

Here is a preliminary list of entities for the Bongshal Multivendor E-commerce Platform:

User:

- UserID (Primary Key)
- Username
- Email
- Password
- UserType (Customer, Staff, Vendor)

Lead:
- LeadID (Primary Key)
- MobileNumber (Unique Identifier)
- Name
- Area
- MotorcycleBrand
- OtherLeadDetails...

Inquiry:
- InquiryID (Primary Key)
- CustomerID (Foreign Key)
- InquiryDate
- InquiryChannel (Phone, Facebook, WhatsApp, Website)
- InquiryDetails
- ImageAttachment
- ReviewStatus
- SupportPersonnelID (Foreign Key)
- VendorDetails...
- QuotationDetails...

Quotation:
- QuotationID (Primary Key)
- InquiryID (Foreign Key)
- QuotationDate
- QuotationDetails
- OrderStatus

Order:
- OrderID (Primary Key)
- CustomerID (Foreign Key)
- OrderDate
- OrderDetails
- OrderStatus

- DeliveryStatus
- PaymentDetails...

Product:
- ProductID (Primary Key)
- ProductName
- ProductDescription
- Price
- Brand
- Category
- VideoLink
- DiscountDetails
- CouponDetails
- ReferralDetails

Staff:
- StaffID (Primary Key)
- StaffName
- Position
- AttendanceDetails
- LocationDetails
- LeaveDetails
- IncentivePenaltyDetails
- SalaryDetails

Vendor:
- VendorID (Primary Key)
- VendorName
- VendorType (Physical Store, Online)
- PaymentCommissionSettings
- WithdrawalStrategy
- RecognitionDetails...

Location:
- LocationID (Primary Key)
- LocationName
- LocationType (Garage, Filling Station, Hospital)

Blog:

- BlogID (Primary Key)
- BlogContent
- ACLDetails
- CustomerRewards

DiscountCoupon:
- CouponID (Primary Key)
- CouponType
- CouponDetails

Video:
- VideoID (Primary Key)
- VideoLink
- SourceType (Vimeo, FTP)

Garage:
- GarageID (Primary Key)
- GarageName
- GarageType (Featured, Standard, Badge, Recognition)
- EngineGrade4Details...

Payment:
- PaymentID (Primary Key)
- OrderID (Foreign Key)
- Amount
- PaymentDate
- Medium (Bkash, Bank)

UserAuthenticationLog:
- LogID (Primary Key)
- UserID (Foreign Key)
- LoginDetails
- LogoutDetails

MarketingChannel:
- ChannelID (Primary Key)
- ChannelType (SMS, Email, App Notification)

Referral:

- ReferralID (Primary Key)
- ReferrerID (Foreign Key)
- ReferralType (Garage, Individual, Vendor)
- ReferralRewards

These are general entities based on the provided information. Depending on your specific needs and functionalities, you may need to refine or extend this list. Additionally, relationships and attributes for each entity should be carefully defined based on the business requirements.

Relationship between entity

Based on the entities, here's an outline of the relationships between them:

User - Lead:
- One user can be associated with multiple leads.
- A lead is created by a user.

Lead - Inquiry:
- One lead can have multiple inquiries.
- An inquiry is associated with a specific lead.

Inquiry - Quotation:
- One inquiry can result in multiple quotations.
- A quotation is generated based on a specific inquiry.

Quotation - Order:
- One quotation can lead to one order.
- An order is created from a finalized quotation.

User - Order:
- One user can place multiple orders.
- An order is associated with a specific user.

Order - Payment:

- One order can have one or more payments.
- A payment is associated with a specific order.

Product - Quotation:
- Multiple products can be included in a quotation.
- A quotation consists of specific products.

Product - Order:
- Multiple products can be part of an order.
- An order includes specific products.

Staff - Inquiry:
- One staff member can handle multiple inquiries.
- An inquiry is assigned to a specific staff member.

Vendor - Quotation:
- One vendor can provide multiple quotations.
- A quotation is generated by a specific vendor.

Vendor - Order:
- One vendor can fulfill multiple orders.
- An order is associated with a specific vendor.

Location - SOS:
- Multiple locations can be associated with SOS.
- An SOS event may be linked to a specific location.

Blog - User:
- One user can contribute to multiple blogs.
- A blog is created by a specific user.

DiscountCoupon - Order:
- One order can use multiple discount coupons.
- A discount coupon can be applied to specific orders.

Video - Product:
- One product can have multiple associated videos.
- A video is related to a specific product.

Garage - Referral:

- One garage can be associated with multiple referrals.
- A referral may be linked to a specific garage.

Payment - WithdrawalStrategy:
- Multiple payments may follow a specific withdrawal strategy.
- A withdrawal strategy is linked to one or more payments.

User - UserAuthenticationLog:
- One user can have multiple login/logout records.
- Each user authentication log entry is associated with a specific user.

User - Referral:
- One user can be associated with multiple referrals.
- A referral is generated by a specific user.

MarketingChannel - User:
- Multiple marketing channels can be associated with a user.
- A user may be reached through various marketing channels.

This represents a basic overview, and depending on specific business rules and requirements, these relationships might need further refinement or adjustment.

Time Estimation

The time estimation for creating a Technical Requirements Document (TRD) for a project like Bongshal can vary based on several factors, including the complexity of the project, the level of detail required, and the thoroughness of the research and analysis. Here are some general guidelines:

Research and Analysis:
- Understanding business requirements, existing systems, and stakeholders: 1-2 weeks.
- Gathering and organizing information about each feature and functionality: 2-3 weeks.

Document Preparation:

- Drafting and detailing each section: 4-6 weeks.

- Review and revisions: 1-2 weeks.

Review and Approval:
Internal review with the development team and stakeholders: 2-3 weeks.
Incorporating feedback and finalizing the document: 1-2 weeks.

Total Estimated Time:

- The first MVP (minimum viable product) is expected to be completed in 3 months.
- A functional web version is anticipated to be ready after 6 months.
- The full-fledged, operational web and Android versions are projected to be completed 9 months into the project.

It's important to note that these are approximate timeframes, and the actual time required may vary based on the project's specific nuances, the availability and responsiveness of stakeholders, and the speed of the review and approval process. Additionally, if certain information is readily available and stakeholders are highly engaged, the process could be expedited.

Effective communication and collaboration among team members and stakeholders can significantly impact the efficiency of the TRD creation process. Regular check-ins and feedback loops will help streamline the development of the document.

Title	Subsection	Short Description	Time Estimation (Hours)
Lead Collection System		Implement CRUD functionality for lead management.	8
	Customized Inquiry System	Integrate export/import management tools.	4

		Utilize Facebook and WhatsApp APIs for lead collection.	10
	Quotation Workflow	Develop a workflow system for quotation generation and finalization.	15
		Implement order status tracking.	4
	Delivery System	Integrate payment gateways for secure transactions.	15
		Collaborate with delivery partners using APIs.	15
Product Management	**Multimedia Product Display**	Develop a media management system for video and image uploads.	18
	Discount and Coupon/Voucher System	Design and implement a discount and coupon/voucher system.	21
	Referral System	Create a referral system with unique identifiers for garage owners, individuals, and vendors.	14

Order Management	Payment Integration	Integrate secure payment gateways.	25
		Ensure PCI DSS compliance for payment processing.	14
	Ledger System	Design a ledger system for basic income and expense tracking.	21
Staff Management	Attendance and Location Tracking	Implement attendance tracking through a physical device and Android app.	30
		Integrate location tracking functionality.	20
	Leave Management and Incentive/Penalty	Develop a leave management system.	20
		Implement incentive and penalty mechanisms.	15
	Salary Management	Design a salary management system for office staff.	21
Vendor Management	Payment and Commission Settings	Develop payment and commission settings modules.	18
		Implement commission calculation logic.	15

	Withdrawal Strategy	Design and implement a withdrawal strategy with defined waiting periods and mediums.	30
User Authentication and Security	**Login System**	Implement secure login methods including email, Google, Facebook, and SMS.	18
		Design a secure signup and password recovery system.	12
		Session Management	4
		Configure session management for long login intervals and automatic logout.	3
Marketing	**Marketing Channels**	Integrate SMS, email, and app notification services for marketing.	24
	Referral System	Implement a referral system with tracking and rewards.	12
SOS Setting	**Location-based SOS**	Design a location-based SOS system with CRUD functionality.	25
		Implement paid SOS services with direct calling.	30

Blog Management	ACL and Customer Rewards	Develop ACL for blog editing.	25
		Implement customer rewards for blog contributions.	25
Bkash Cash/App Discount	Integration	Integrate Bkash for cash/app discounts.	23
Video Integration	Vimeo Integration	Integrate Vimeo for video hosting.	18
		Develop external video storage through FTP server integration.	14
Data Import	Import from Existing Site	Develop import functionality for product, order, and customer data.	15
Garage Management	Self/Other Customer Registration	Design registration forms for self and other customers.	5
		Implement B2B functionality.	9
	Recognition System	Develop a recognition system for featured, standard, and badge	17

		garages.	
Engine Grade 4	**Settings**	Implement editable/addable settings for engine grade 4.	7
		Develop registration forms for self/other customers.	12
Vendor Physical Store Management	**Customized Format**	Implement a system for managing the physical store of vendors based on a provided format.	14
Security Considerations	**Encryption**	Implement data encryption for sensitive information.	5
		Ensure secure communication protocols (HTTPS).	2
		Authorization and Authentication	3
		Enforce proper authorization and authentication mechanisms.	4
		Implement role-based access control (RBAC).	22
Unit Testing			
		Total	**701**

App Functionality	Android ios apps	Basic Ecommerce Android ios apps features	
Ecommerce checkout Process in app			50
Api for app			40
Lead Collection System		Implement CRUD functionality for lead management.	15
	Customized Inquiry System	Integrate export/import management tools.	7
		Utilize Facebook and WhatsApp APIs for lead collection.	22
		Develop a workflow system for quotation generation and finalization.	32
	Quotation Workflow	Implement order status tracking.	6
		Integrate payment gateways for secure transactions.	38
	Delivery System	Collaborate with delivery partners using APIs.	31

Product Management	Multimedia Product Display	Develop a media management system for video and image uploads.	33
	Discount and Coupon/Voucher System	Design and implement a discount and coupon/voucher system.	28
	Referral System	Create a referral system with unique identifiers for garage owners, individuals, and vendors.	20
Order Management	Payment Integration	Integrate secure payment gateways.	40
		Ensure PCI DSS compliance for payment processing.	22
	Ledger System	Design a ledger system for basic income and expense tracking.	36
Staff Management	Attendance and Location Tracking	Implement attendance tracking through a physical device and Android app.	50
		Integrate location tracking functionality.	30

	Leave Management and Incentive/Penalty	Develop a leave management system.	35
		Implement incentive and penalty mechanisms.	27
	Salary Management	Design a salary management system for office staff.	30
Vendor Management	**Payment and Commission Settings**	Develop payment and commission settings modules.	25
		Implement commission calculation logic.	20
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		Design a secure signup and password recovery system.	20
		Session Management	4

		Configure session management for long login intervals and automatic logout.	6
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		Implement paid SOS services with direct calling.	40
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		Implement customer rewards for blog contributions.	30
Bkash Cash/App Discount	Integration	Integrate Bkash for cash/app discounts.	30

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		Authorization and Authentication	3
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		Implement role-based access control (RBAC).	30
		Total	**1081**