**Real-Time Order Tracking and Coordinated Customer Support System**



**GROUP – 4**

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**TABLE OF CONTENTS**

|  |  |  |
| --- | --- | --- |
| **CHAPTER** | **TITLE** | |
| 1 | | Project Description | |
| 2 | | Development Approach | |
| 3 | | Team | |
| 4 | | Stakeholder | |
| 5 | | Scope | |
| 6 | | Required non-human resources | |
| 7 | | Project schedule and milestones | |
| 8 | | Risks and ethical concerns | |
| 9 | | Desired outcome/ product | |
| 10 | | Task board | |
| 11 | | Meeting notes | |
| 12 | | References | |

1. **PROJECT DESCRIPTION**

This Real-Time Order Tracking and Coordinated Customer Support System project targets developing an integrated platform for the retail customer experience to track their order status in real time and facilitate smooth coordination between customers and support teams. This system will help customers track the order placed by them from their location right through to the due date of delivery, getting instant notifications relating to order progress, while providing a coordinated customer support interface for customer inquiries and issues resolution.

**Objectives:**

**Improve Visibility:** Provide all relevant order information to the customers in real time.

**Enhance Customer Satisfaction:** Quick response times, thereby facilitating easier customer support.

**Efficiency:** Automate tracking orders and support incidents to reduce human intervention.

Data-Driven to Order and Support Data for Business Decisions and Service Quality Improvement.

The background is that, in the competitive retail market, excellent customer service is crucial for loyalty and repeat sales. This project, therefore, is targeted at bridging these lapses with a formidable solution that would meet the expectations of modern-day customers.

**2**. **DEVELOPMENT APPROACH**

**Methodology:** Agile Development

We will adapt the Agile methodology in this project to ensure flexibility, iterative progress, and continuous improvement. Collaboration, customer feedback, and adaptive planning are particularly emphasized in Agile, which goes well with the dynamic requirements of our project.

**Key Phases:**

Planning and Design:

Scoping and clearly stipulating the objectives of the project.

Design of system architecture and user interfaces.

Highlighting the technologies and tools that will be required.

Development Sprints:

Sprint 1: Development of Order Tracking Module

Sprint 2: Construction of Customer Support Interface

Sprint 3: Integration of Real-Time Notification Systems

Sprint 4: Incorporation of the data analytics and reporting features

Testing and Quality Assurance:

Unit testing and integration testing, including user-acceptance testing.

Bug fixing and performance optimization.

Deployment:

Production Deployment: The system goes live into the production environment.

Performance observation along with taking user feedback.

Maintenance and Iteration:

Ongoing continuous support and updates according to user feedback and evolving requirements.

Tools and Technologies :

Project Management: Project tracking is to be performed using Jira. Task tracking and sprint management will be performed via this tool.

Communication: Slack will be used in terms of team collaboration.

Development: Python will be used for backend development, while for frontend development, JavaScript will be utilized.

AWS: Cloud services for hosting/scaling, cloud services.

Database: PostgreSQL - Storage of data.

Incorporating Customer Feedback: Feedback sessions will be done at the end of each sprint for continuous input from stakeholders and users. These would then form a basis for further development cycles to ensure that the system will meet needs and expectations at the end.

**3. TEAM**

Our project team consists of five active members with various necessary skills and experiences that will be helpful to ensure the success of the project.

G Prasanna Kumar Battina - Project Manager:

Roles: This includes overseeing project planning, coordinating activities of the team, managing timelines, and ensuring project objectives are met.

Harsha Vardhan Chavvakula - Lead Developer:

Roles: He is supposed to lead the back-end and front-end developments, enforce system architecture, and enforce code quality.

Mani Sai Sankar Pasupuleti - UX Designer:

Responsibilities: Design the UI, envision the workflow of the user experience, and make sure the system is intuitive and user-friendly.

Sujan Kumar Gummalla - Data Analyst:

Responsibilities: Work on order and support data analysis, create report tools, and communicate meaningful findings toward actionable items by the system in need of improvement.

Venkata Sainath Machireddy - QA Specialist:

Responsibilities: Test the system, find bugs, and squash them to ensure that the system is up to quality standards.

**4. STAKEHOLDERS**

**Primary Stakeholders**

**Customers:**

Interest: To have immediate feedback about the status of their orders and receive efficient customer care.

Benefit: To help customers better understand and be satisfied with timely information and responsive support.

**Customer Service Representatives:**

Interest: To utilize the integrated support interface for the handling of customer queries and issues.

Benefit: Because it has organized work flow and can solve customer problems in much less time.

**Retail Customers:**

Interest : To monitor system performance, follow-up order status, and analyze support information.

Benefit: Data-driven decisions which will gradually improve the operational efficiencies.

**IT Teams:**

Interest: Seamless integration without disturbing the existing systems, not affecting system performance.

Benefit: Robust and scalable Infrastructure to sustain business operation processes.

**Secondary Stakeholders**

**Suppliers and Logistics Partners**

Interest: It should be able to plan and coordinate the order fulfillment and delivery process.

Benefit: It will also improve communication and integration with the retail system.

**Investors/Shareholders:**

Interest: The project quantifies business performance and customer satisfaction.

Business value increase and higher returns are possible by increasing customer loyalty.

**5. SCOPE**

**Real-Time Order Tracking:**

Provide on-site minute status reports relating to orders in processing, shipping, and delivery.

**Automated Status Updates:**

Establish email and SMS automated notifications for notification on major milestones in the order process.

**Customer Support Interface:**

Create an easy-to-use support portal where customers can submit inquiries, track their support tickets, and also communicate with support representatives.

**Integration with Existing Systems:**

Allow for seamless integration with existing inventory management, order processing, and CRM systems.

**Data Analytics and Reporting:**

Develop the analytical tools to evaluate order and support data for trends, improvements in process, and enhance customer service.

**Out of Scope:**

**Advanced Predictive Analytics:**

Such advanced functionality as being able to predict delays against orders based on historical data shall not form part of the initial system implementation.

**Mobile Application Development:**

While responsive on mobile platforms, any standalone mobile application development is out of scope.

**Multilingual Support:**

Only the English language is contemplated in this first version; further versions might include other languages.

**Third-Party Integrations:**

What is outside of the integration scope of current retail systems integrations, integration with external platforms will not be developed during this phase.

**6. REQUIRED NON - HUMAN RESOURCES**

**Software:**

* **Project Management:**
  + **Jira:** For tracking tasks, managing sprints, and monitoring project progress.
* **Communication:**
  + **Slack:** For team collaboration and real-time communication.
* **Development Tools:**
  + **Python:** For backend development.
  + **JavaScript (React.js):** For frontend development.
* **Database Management:**
  + **PostgreSQL:** For robust and scalable data storage.
* **Cloud Services:**
  + **Amazon Web Services (AWS):** For hosting, storage, and scalable computing resources.
* **Design Tools:**
  + **Adobe XD/Figma:** For designing user interfaces and creating prototypes.

**Hardware:**

* **Servers:**
  + High-performance servers for hosting the application and managing data storage.
* **Mobile Devices:**
  + Smartphones and tablets for testing the mobile responsiveness of the system.
* **Workstations:**
  + High-spec computers for development, design, and testing purposes.

**Cloud Services:**

* **AWS Services:**
  + **EC2:** For scalable computing power.
  + **S3:** For data storage.
  + **RDS:** For managed database services.
  + **Lambda:** For serverless computing tasks.
* **CI/CD Tools:**
  + **Jenkins/GitHub Actions:** For continuous integration and deployment.

**Other Resources:**

* **Version Control:**
  + **GitHub:** For code repository management and collaboration.
* **Testing Tools:**
  + **Selenium:** For automated testing of the web application.

**7. Project Schedule & Milestones**

**Project Timeline:** 9 WEEKS

| **Phase** | **Duration** | **Start Date** | **End Date** | **Milestones** |
| --- | --- | --- | --- | --- |
| Planning and Design | 2 weeks | 08/15/2024 | 08/29/2024 | Project plan approval, system design finalized |
| Development of Order Tracking | 3 weeks | 08/29/2024 | 09/19/2024 | Order Tracking Module completed |
| Development of Customer Support Interface | 1 week | 09/19/2024 | 09/26/2024 | Customer Support Interface operational |
| Integration and Notification Systems | 1 week | 09/26/2024 | 10/03/2024 | Real-Time Notifications integrated |
| Testing and Quality Assurance | 1 week | 10/03/2024 | 10/10/2024 | System testing completed, bugs resolved |
| Final Review and Deployment | 1 week | 10/10/2024 | 10/17/2024 | System deployed to production |

**Key Milestones:**

**Project Plan Approval:**

The detailed project plan is complete and approved.

**System Design Finalized:**

System architecture and user interface designs are finalized.

**Order Tracking Module Completed:**

Order tracking functionalities are developed and initially tested.

**Customer Support Interface Operational:**

The customer support portal is functional with basic functionalities.

**Real-Time Notifications Integrated:**

Automated status updates and notifications integration complete.

**System Testing Completed:**

Full system testing to ensure the reliability and performance of the system.

**System Deployed to Production:**

Formal launch to live use by customers and support teams.

**Project Costs or Budget:**

* Development Costs: $50,000
* Software Tools: $10,000
* Hardware: $15,000
* Contingency: $5,000
* Total: $80,000

**8. Risks and Ethical Concerns**

**Risks:**

**Technical Issues:**

**Description**: Integrating a new system into the current retail platforms may face certain technical glitches.

**Mitigation:** Compatibility testing and the involvement of IT teams right from the beginning of integration.

**Data Breaches:**

**Description:** Non-authorized breach or access of customer data.

**Mitigation:** Stringent encryption, limits on access, and following data protection laws like the GDPR.

**System Downtime:**

**Description:** Possibility of system downtime affecting order tracking and customer support.

**Mitigation:** Utilize cloud services that ensure high uptimes and implement redundancy appropriately.

**User Adoption Issues:**

**Description:** Unable to get customers and support staff to use the new system in the required manner.

**Mitigation:** Thorough training, ease in the design for use, and support to encourage them to adapt.

**Budget Overruns:**

**Description:** The project overspends due to some unpredicted expenses other than what was budgeted for.

**Mitigation:** Have a detailed budget plan, closely monitor expenditures, and make provisions for contingency funds.

**Ethical Issues:**

**Customer Data Handling:**

**Data Protection:** The application should ensure data protection for customer information without violation of privacy.

**Solution:** The application shall comply with data protection legislation, shall obtain explicit consent for any data use, and display data policy transparently.

**Transparency in Communications:**

**Concern:** To be transparently honest and clear in communications related to the status of orders or support-related activities.

**Solution:** Notifications and communications shall be timely, unambiguous, and free of misleading information.

**Accessibility:**

**Concern:** The system should be accessible for all categories of customers, including people with disabilities.

**Solution:** Inclusive design and development should include accessibility standards, such as WCAG.

**9. Desired Outcome/Product**

The eventual deliverable of the project will be a complete, workable, and user-friendly system highly improving the customer experience of retail customers regarding order tracking in real-time and a harmonized customer support interface.

**Expected Outcomes:**

**Improved Customer Experience:**

Real-time order information is instantly provided to the customers, which minimizes uncertainty while improving customer satisfaction.

**Improved Operational Efficiency:**

Automation reduces the need for manual intervention, making more time available for the support teams to address greater levels of complexity.

**Increased Transparency:**

It helps in building up the element of trust between customers and a retail business by creating clear visibility into order statuses. Data-Driven Decision Making: Advanced analytics on customer behavior and system performance guide continuous improvement. Competitive Advantage: Advanced tracking and support features set the retail business apart in a major way from competitors, therefore attracting and retaining more customers.

**Product Features:**

Real-Time Order Tracking Dashboard: An interactive dashboard/view showcasing the current status of all orders.

**Automate Notifications:**

Email and SMS notifications of key milestones in the order-order placed, shipped, out for delivery, and delivered.

**Customer Support Portal:**

User-friendly interface to raise and track support tickets, live chat, and accessing FAQs.

**Admin Interface:**

Order management, tracking of support interactions, and reporting.

**Mobile Responsiveness:**

Accessible across devices to enable customers to track their order and seek support on-the-go.

**Long-Term Benefits:**

**Scalability:**

System design to handle incrementing order volumes and support requests over growth.

**Integration Capabilities:**

Maybe in the future, it will be integrated with more platforms and services to extend the functionalities.

**Sustainable Growth:**

Constantly improving, informed by data, to keep the system relevant to customers' needs.

**10. TASK BOARD**

It thus means we are using Jira, an issue-tracking product for task management to effectively manage and track the project's progress. This shall be organized in a number of columns on the task board, reflecting different stages of the task completion process.

Tasks that are currently being developed by the team members.

**Review:**

Tasks which are finished but not reviewed yet, either by peers or by the manager.

**Done:**

When tasks are finished and approved.

**Sample Task Categories:**

Order Tracking Module:

Database schema design for order status tracking.

Backend API for order status update.

Frontend components for the order tracking dashboard.

**Customer Support Interface:**

UI designing for the support portal.

Ticket Submission and Tracking feature implementation.

Integrate Live Chat.

**Notifications System:**

Setup Email and SMS notification services.

Develop triggers for auto-notifications.

**Test Notification:** Delivery and accuracy.

**Integration:**

Integrate with the existing inventory management system.

Assurance of data synchronization between both platforms.

**Testing and QA:**

Writing the test case for each module.

Unit and Integration testing to be performed.

UAT to be performed.

**Task Allocation:**

The above-mentioned tasks will be allocated to individual team members based on their role and expertise. Also, putting a deadline will facilitate the timely completion and tracking of progress through daily stand-up meetings and sprint reviews.

**11. MEETING NOTES**

**Meeting Schedule:**

**Date:** 09/26/2024

**Platform:** Microsoft Teams

**Attendees:** G Prasanna Kumar Battina, Harsha Vardhan Chavvakula, Mani Sai Sankar Pasupuleti, Sujan Kumar Gummalla, Venkata Sainath Machireddy

**Key Discussion Points:**

- Initial project briefing and assignment of tasks.

- Discussed project requirements for real-time order tracking and customer support system.

**Assigned roles and responsibilities to each team member:**

- G Prasanna Kumar Battina: Project Manager, responsible for planning and monitoring.

- Harsha Vardhan Chavvakula: Lead Developer, tasked with building the order tracking system.

- Mani Sai Sankar Pasupuleti: UX Designer, responsible for designing user-friendly interfaces.

- Sujan Kumar Gummalla: Data Analyst, in charge of handling data flow and API integration.

- Venkata Sainath Machireddy: QA Specialist, tasked with creating a testing plan.

**Action Items:**

- Each member to begin working on their respective tasks.

- Harsha to create the architecture of the order tracking system.

- Mani to start designing wireframes for the user interface.

- Sujan to work on data integration strategies.

- Sainath to start drafting a QA testing plan.

**Outcome:** All tasks assigned with deadlines set for next meeting on 10/03/2024.

**Date:** 10/03/2024

**Platform:** Microsoft Teams

**Attendees:** G Prasanna Kumar Battina, Harsha Vardhan Chavvakula, Mani Sai Sankar Pasupuleti, Sujan Kumar Gummalla, Venkata Sainath Machireddy

**Key Discussion Points:**

- Reviewed progress on initial tasks.

- Harsha: Completed the basic architecture for the order tracking system and began backend development.

- Mani: Completed initial wireframes for both the customer interface and support dashboard.

- Sujan: Successfully integrated APIs to pull real-time order data from the e-commerce platform.

- Sainath: Developed the initial test cases and prepared the testing environment.

**Action Items:**

- Harsha to begin building the core functionality of the order tracking system.

- Mani to refine the UI designs based on team feedback and prepare prototypes for the next meeting.

- Sujan to test API integration with sample data.

- Sainath to create detailed test plans for different components.

**Outcome:** All tasks from the previous week completed successfully. Continued progress on key features.

**Date:** 10/10/2024

**Platform:** Microsoft Teams

**Attendees:** G Prasanna Kumar Battina, Harsha Vardhan Chavvakula, Mani Sai Sankar Pasupuleti, Sujan Kumar Gummalla, Venkata Sainath Machireddy

**Key Discussion Points:**

- Reviewed completed tasks and discussed the next phase of the project.

- Harsha: Completed the core functionalities for real-time order tracking.

- Mani: Finalized the design of the user interface and support dashboard, shared prototypes with the team.

- Sujan: Completed API integration and successfully tested with real-time order data.

- Sainath: Ran initial tests on the system’s functionalities, identified minor bugs for further testing.

**Action Items:**

- Harsha to integrate the customer support module into the system.

- Mani to polish the final UI designs based on the testing feedback.

- Sujan to continue monitoring data flow and API performance.

- Sainath to run comprehensive QA tests on both the order tracking system and the support interface.

**Outcome:** All members completed their tasks successfully, and the project is on track for the next sprint.

**12. REFERENCES**

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