DoorDash Project
Managing Product Development

Product Manager: Heba Mohamed

Test Plan

Create a test plan to validate everything is built to spec and working correctly

Test Cases: Functional Requirements

Feature	Steps	Expected Behavior	Priority
Autonomous Navigation Robot Navigation on a Straight Path	1- Initialize the robot delivery system. 2- Set the delivery point within a 2-mile radius. 3- Command the robot to start navigation. 4- Observe the robot's navigation along a straight path.	The robot navigates the straight path smoothly without deviation.	P0
Obstacle Avoidance	1-Initialize the robot delivery system. 2- Set the delivery point within a 2-mile radius. 3- Command the robot to start navigation. 4- Place an obstacle (e.g., a trash can) in the robot's path. 5- Observe the robot's response to the obstacle	The robot detects the obstacle and navigates around it to avoid collision	P0

Cont. Test Cases: Functional Requirements

Feature	Steps	Expected Behavior	Priority
Completion Notification	1-Initialize the robot delivery system. 2- Set the delivery point within a 2-mile radius. 3- Command the robot to start delivery. 4- Wait for the robot to reach the delivery point. 5- Monitor the completion notification on the operations dashboard	The operations dashboard displays a notification when the delivery is successfully completed.	P2
Emergency Stop	1-Initialize the robot delivery system. 2- Command the robot to start delivery. 3- Simulate an emergency scenario during delivery. 4- Activate the emergency stop feature from the operations dashboard. 5- Observe the robot's response.	The robot stops immediately and safely when the emergency stop command is issued.	P1

Cont. Test Cases: Functional Requirements

Feature	Steps	Expected Behavior	Priority
Real-Time Delivery Status Updates	1-Initialize the robot delivery system. 2- Set the delivery point within a 2-mile radius. 3- Command the robot to start delivery. 4- Monitor the delivery status on the operations dashboard.	The operations dashboard displays real-time updates on the robot's location and delivery progress.	P1

Test Cases: Non-functional Requirements

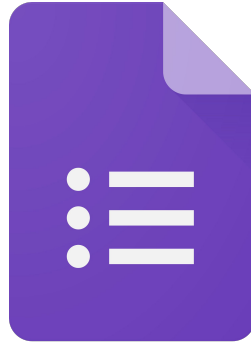| Requirement	Steps to reproduce	Priority
Delivery Time Efficiency	1-Initialize the robot delivery system. 2-Set 10 different delivery points within a 2-mile radius. 3-Command the robot to start deliveries sequentially. 4-Measure the time taken for each delivery from start to completion. 5-Calculate the average delivery time. **Expected behavior**: The robot completes each delivery within the target time frame (e.g., under 15 minutes per delivery)	P0
System Load Handling	1-Initialize the robot delivery system. 2- Simulate 100 simultaneous delivery requests within a 2-mile radius. 3- Monitor the system's performance and resource utilization. 4- Measure the response time for each delivery request. 5- Observe any delays or system crashes. **Expected Behavior**: The system handles 100 simultaneous delivery requests without significant delays or crashes, maintaining optimal performance.	P2

Cont. Test Cases: Non-functional Requirements

Requirement	Steps to reproduce	Priority
Data Encryption and Protection	1- Initialize the robot delivery system. 2- Send a delivery request containing sensitive customer information (e.g., address, contact details). 3- Intercept the data transmission between the client and server. 4- Analyze the intercepted data for encryption and protection mechanisms. **Expected Behavior:** Sensitive customer information is encrypted during transmission, ensuring data protection and privacy	P1

Dogfood Survey

Create a dogfood survey to get insight from real world usage

Dogfood Survey

https://docs.google.com/forms/d/e/1FAIpQLScxkrRLtYjgMIx0RWwH-gsdPeCyL805CtFYRDJyC8ldnnNqYQ/viewform

Prioritize

Issues come up. Keep the team focused on the things that matter the most

Fire Drills

Scenario	Who	Communication Method	Key Messages
QA finished testing and reported that 3 test cases failed	Engineering team QA team Product Researchers	Meeting	- Schedule a meeting and invite all relevant attendees - QA explains all the failed test cases and why it failed - Engineers and product will do a brainstorming to list all possible solutions - Product will set a new priority for the solutions
An engineer is ready to start working on the next feature, but doesn't have the mocks for it	UI/UX Designer researcher	Ping (Instant message)	- Engineer lead will send message to the UI/UX team saying that "Engineers is blocked now" - Please prioritize the mock and hand over it to them to start working
Support flagged that many users are unable to sign in to their accounts	Engineering team Support team Product	Group chat	- Support team will explain the issue details which reported by customers in the group chat - Product will ask engineers to start investigation and prioritize the solving as it is P0 and impact the revenue - Engineers will start investigation to resolve the issue and update the rest in the group chat
Dogfood survey results are in and dogfooders are not excited about recommending the product	Research team Design team Engineering team	Meeting	- Product will schedule a meeting with all relevant attendees - Product will ask the research team to start research about the reason behind this feedback from customers - Engineers will tell their opinions and the possible reasons about this

Cont. Fire Drills

Scenario	Who	Communication Method	Key Messages
Legal informed you about a new law going into effect that will require you to add new privacy controls before you can launch	Product Development team Legal team	Meeting	- Product will schedule a meeting will all relevant attendees - The legal team will start discussing the reason for adding new privacy controls before you can launch - The product will set high priority for this new work and will ask the development team to start working on it
A new PM just joined your team and is interested in learning about your work	The new Product manager Development team UI/UX Support Relevant stakeholders	Meeting	- The new PM will schedule a meeting will all team members - The will start breaking ice and introduce themselves to each other - The new PM will start asking about details for the product from Development and UX

Prioritize

Scenario	Priority Ranked	Rationale
QA finished testing and reported that 3 test cases failed	3	We will processed with solving the bugs and issues in the application as this will affect the revenue
An engineer is ready to start working on the next feature, but doesn't have the mocks for it	4	The engineer now is blocked and we need the UI/UX team to provide him the mocks to move forward
Support flagged that many users are unable to sign in to their accounts	1	This will affect the revenue, so we have to solve it asap, this is P0
Dogfood survey results are in and dogfooders are not excited about recommending the product	5	Its important feedback but its not a blocker for anything so far, so we will proceed with it as Rank 5
Legal informed you about a new law going into effect that will require you to add new privacy controls before you can launch	2	This is considered a blocker for the launch, so we need to add this asap to launch the product
A new PM just joined your team and is interested in learning about your work	6	This is nice to have but has no impact on the product now

Go No Go

Run a go / no go meeting to decide if the product is ready to launch, and communicate out any risks and mitigations in place

DoorDash

DoorDash is at the forefront of food delivery innovation, exploring the potential of self-driving robots to revolutionize its services. The company envisions a future where autonomous robots handle deliveries within a 2-mile radius, reducing operational costs and ensuring more reliable delivery times. While initial implementations may require human oversight for specific scenarios, the long-term goal is for these robots to navigate sidewalks independently.

Key Features:

- **Cost Reduction:** Decrease delivery costs by minimizing reliance on human labor.

- **Enhanced Reliability:** Provide more consistent and reliable delivery times through automation.

- **Autonomous Navigation:** Develop robots capable of navigating sidewalks autonomously in the long term.

- **Operational Control:** Create a tool for the operations team to monitor delivery status and remotely control robots when necessary.

Robot Navigation on a Straight Path

Testing:
- All test cases passed

Dogfood:
- Positive feedback from dogfooders

Production Readiness:

- Navigation accuracy rate of 98% along straight paths.

Open Issues / Risk:
- Potential issues in maintaining accuracy in varying weather conditions.
- Risk of unexpected obstacles disrupting the straight path navigation.

Mitigations:
- Implementing additional sensors and AI adjustments to handle adverse weather conditions.
- Continuous monitoring and real-time obstacle detection systems to mitigate disruptions.

Obstacle Avoidance

Testing:

- One test case failed, The robot failed to detect and navigate around the obstacle, resulting in a collision.

Dogfood:

- Dogfooders reported multiple instances where the robot collided with obstacles like trash cans and other static objects, indicating inconsistency in the obstacle detection system.

Production Readiness:

- 85% success rate in obstacle avoidance, below the required threshold for a reliable launch.

Open Issues / Risk:

Inconsistent Obstacle Detection: The robot's sensors occasionally fail to detect obstacles in time.
Collision Risk: Risk of damage to the robot and potential injury to pedestrians if obstacles are not avoided.
Negative User Experience: Continued collisions could lead to user dissatisfaction and loss of trust in the system.

Mitigations:

- **Sensor Calibration:** Enhance the calibration of sensors to improve detection accuracy.
- **AI Algorithm Improvements:** Refine the AI algorithms to better predict and react to obstacles.

Real-Time Delivery Status Updates

Testing:
- All test cases passed

Dogfood:
- A third of dogfooders ran into issues. Some suggestions for enhancing the update frequency and detail.

Production Readiness:

- 98% accuracy in delivery status updates

Open Issues / Risk:
- Potential latency in update transmission during peak usage times.

Mitigations:
- Optimizing the system for peak performance to minimize latency.

Recommendation: [Launch]

Proceed with Launch: Launch features that are ready (Robot Navigation on a Straight Path and Real-Time Delivery Status Updates) while holding back the Obstacle Avoidance feature until the identified issues are resolved.

- **Next Steps:** Focus on refining the Obstacle Avoidance feature through additional testing and improvements, then plan for a subsequent launch once it meets the reliability standards
-

Rationale:

1. **Robot Navigation on a Straight Path:** All test cases passed with a 98% accuracy rate. Positive feedback from dogfooders indicates readiness for production.
2. **Real-Time Delivery Status Updates:** Successful in all test cases and highly accurate at 98%. Users appreciated the real-time updates, with some suggestions for improvement.
3. **Obstacle Avoidance Issues:** One critical test case failed and dogfood feedback highlighted inconsistencies. Holding back this feature allows for further refinement, ensuring user safety and satisfaction before a full launch.

.

Invitation: Go / No Go Launch Meeting

To:
- Leadership team
- Product Management Team
- Engineering Lead
- QA Team Lead
- Customer Support
- IT/Security Team
- Legal Team Lead
- Marketing Team
- Operations Team
- Stakeholders
- Support team
- UX lead

Subject: Exciting Update on Robot Navigation Project

Dear Team,

Overall Status:

Robot Navigation on a Straight Path: All test cases passed with positive feedback, achieving 98% navigation accuracy. This feature is ready for launch.

Obstacle Avoidance: One test case failed, with issues reported. The success rate is at 85%, and it is not yet ready for launch.

Real-Time Delivery Status Updates: All test cases passed, achieving 98% accuracy. This feature is ready for launch.

Risks and Mitigations:

Navigation on a Straight Path: Potential issues with weather and obstacles; mitigations include additional sensors and real-time detection systems.

Obstacle Avoidance: Inconsistent detection and collision risks; mitigations include sensor calibration and AI improvements.

Delivery Status Updates: Potential latency; mitigations include system optimization.

Launch Recommendation: We recommend proceeding with a partial launch for the ready features while refining the Obstacle Avoidance feature. This will allow us to showcase our progress and gather valuable user feedback as we enhance the remaining functionalities.

Let's celebrate these significant milestones and continue pushing forward with enthusiasm and dedication!

Best regards,
Heba Mohamed

Responding to Feedback

Your director:

This all looks really promising! Can we launch two weeks earlier than originally planned?

Thank you! It's great to see your excitement about our progress.

- **Current Status:** Navigation and status updates are ready, but obstacle avoidance needs further work.
- **Importance of Testing:** Thorough testing is crucial for reliability.
- **Risks of Early Launch:** Launching earlier could compromise quality and safety.
- **Current Timeline:** Sticking to the planned timeline ensures all standards are met.
- **Alternative Solution:** Focus on ready features, refine obstacle avoidance, and consider a phased rollout.