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# **ELECTRIC CAR MOBILE APP ENHANCEMENT**

## **PROJECT MANAGEMENT PLAN**

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Version 1.2

11/19/2023

## **VERSION HISTORY**

The table below chronicles the various versions of the Electric Car Mobile App Enhancement Project Management Plan. This history aids in tracing the progression and modifications made to the plan over time, ensuring clarity, consistency, and transparency among all stakeholders involved in the project. It is vital to document every significant change to the plan, capturing the essence of the modification, the individual responsible, the approval authority, and the underlying reason for the change (McAlister, 2006).

<b>Versio n #</b>	<b>Implemented By</b>	<b>Revision Date</b>	<b>Approved By</b>	<b>Approval Date</b>	<b>Reason</b>
1.2	Avinash Bunga	10/29/2023	Dr. Sixtus Ekwo	10/25/2023	Initial submission of project idea

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# 1 INTRODUCTION

## 1.1 PURPOSE OF PROJECT MANAGEMENT PLAN

The purpose of the Project Management Plan (PMP) is to define the approach and guide the team in enhancing the Electric Car Mobile App. Specifically, the introduction of the "Winter Mode" feature that allows users to activate the car's winter functions remotely. This PMP ensures that all stakeholders, including executive leadership, developers, product owners, and end-users, have a clear understanding of the project objectives, timelines, and deliverables (LIARGOVAS,2023).

## 2 EXECUTIVE SUMMARY OF PROJECT CHARTER

**The Winter Mode v1.2:** Remote Activation for Electric Cars project aims to enhance the current mobile app of our electric car system. Users have expressed a need for a more user-friendly way to manage the car's winter-specific functionalities. The enhanced app will allow users to prepare their vehicles for winter conditions remotely, even before stepping into their cars. By opting for the Scrum methodology, the development will be iterative, focusing on maximizing user satisfaction over an 8-week timeframe (LIARGOVAS,2023).

### Project Details:

- **Project Name:** Winter Mode v1.2 - Remote Activation for Electric Cars
- **Objective:** Introduce the "Winter Mode" feature in the mobile app that allows users to activate winter functions remotely.
- **Methodology:** Scrum
- **Duration:** 8 weeks

## **2.1 PROJECT BUDGET - HIGH-LEVEL OVERVIEW**

Given the scope of the project and the requirements for developing the "winter mode" feature, the estimated budget for this enhancement is \$250,000. this budget encompasses:

- Software development and testing: \$150,000
- Marketing and promotion: \$50,000
- Stakeholder communication and training: \$25,000
- Miscellaneous and contingencies: \$25,000

The budget has been derived after careful analysis of the project requirements, resources needed, and potential risks. regular budget reviews will be conducted throughout the project duration to ensure we remain within budget (Laslo & Gurevich, 2014).

## **2.2 ASSUMPTIONS/CONSTRAINTS**

### **Assumptions:**

- The car's current winter functionalities can be integrated into the mobile app without any hardware modifications.
- Users will require a stable internet connection to use the remote features effectively.
- The development team has experience with the Scrum methodology (Friess,2023).

### **Constraints:**

- The enhancement needs to be completed and launched within 8 weeks.
- The updated app should be compatible with both Android and iOS platforms.
- Introducing any additional features outside of the Winter Mode may be time-constrained (Friess,2023).

### **3 SCOPE MANAGEMENT**

The Scope Management Plan for the “Electric Car Mobile App Enhancement” project delineates the procedures for ensuring that the project includes all the necessary tasks to successfully implement the “Winter Mode” feature while excluding all work that is outside the project’s boundaries.

#### **Scope Definition:**

The project encompasses the enhancement of the existing mobile app by integrating a “Winter Mode” feature. This feature enables users to activate their electric car’s winter functions remotely. The scope encompasses the following components:

- Detailed user requirements analysis to identify the functionalities of “Winter Mode.”
- Design and prototyping of the “Winter Mode” user interface.
- Programming and coding of the feature for both Android and iOS.
- Comprehensive testing to ensure functionality, usability, and reliability.
- Deployment of the feature through app stores, ensuring seamless user adoption.
- Marketing initiatives to promote the feature and educate users.

#### **Scope Control:**

The Project Manager, Avinash Bunga, will exercise scope control, with the assistance of the Scrum Master, to monitor the project’s progress against the WBS and the project plan. The scope will be evaluated and validated at the end of each development sprint by the development team and the Product Owner during sprint reviews.

**Scope Verification:**

Scope verification will be conducted by the Product Owner, who will confirm the completion and correctness of all “Winter Mode” feature deliverables against user stories and acceptance criteria. This verification will occur before the sprint review meetings.

**Scope Change Management:**

All change requests must be documented on the Change Request Form and submitted to the Change Control Board comprising Avinash Bunga (Project Manager), the Scrum Master, and the Product Owner. The board will assess the impact of scope changes on project cost, time, and quality. Approved changes will be reflected in an updated WBS and project plan, with stakeholders notified through the established communication channels.

**Scope Management Responsibility:**

While the Project Manager has the ultimate responsibility for scope management, all team members are accountable for identifying potential scope alterations and communicating them promptly. This collaborative approach ensures that scope management is proactive and integrated into the daily project activities.

**Scope Management Tools:**

Project will be employed to maintain the WBS, track progress, and manage changes. Additionally, Agile project management software will be used for backlog grooming, sprint planning, and tracking to maintain scope adherence.

This Scope Management Plan will be reviewed bi-weekly by the Project Manager to ensure its continued alignment with project objectives and deliverables. The latest version of this plan will be accessible to all project stakeholders through the project documentation repository, ensuring transparency and accessibility (Dumont et al., 1997).

### 3.1 WORK BREAKDOWN STRUCTURE

Task ID	Task Description	Dependencies	Resources	Start Date	End Date	Notes
1	Project Kickoff	None	Project Manager, Scrum Master, Team Leads	Oct 1, 2023	Oct 2, 2023	Initial project kickoff meeting
1.1	Competitor Feature Analysis	1	Market Analysts, Business Analysts	Oct 3, 2023	Oct 5, 2023	Analyze competitors' apps for feature ideas
2	Requirement Gathering	1.1	Product Owners, Business Analysts, Key Stakeholders	Oct 6, 2023	Oct 10, 2023	Gather detailed app feature requirements
2.1	Requirement Documentation	2	Business Analysts, Confluence or Similar Documentation Tool	Oct 11, 2023	Oct 13, 2023	Document app requirements
3	UX Wireframing	2.1	UX Designers, Sketch or Adobe XD	Oct 14, 2023	Oct 17, 2023	Create wireframes for app UI
3.1	UI Mockup Creation	3	UI Designers, Photoshop or Figma	Oct 18, 2023	Oct 21, 2023	Develop high-fidelity UI mockups
4	Prototype Development	3.1	Front-end Developers, UX Designers, Prototype Tool (e.g., Axure)	Oct 22, 2023	Oct 25, 2023	Develop interactive app prototype
4.1	User Flow Diagrams	4	UX Designers, Flowchart Tool (e.g., Lucidchart)	Oct 26, 2023	Oct 28, 2023	Create user flow diagrams for app navigation
5	Prototype User Testing	4	UX Research Team, User Testing Platform (e.g., UserTesting.com)	Oct 29, 2023	Oct 31, 2023	Conduct user testing with the prototype
5.1	User Feedback Analysis	5	Data Analysts, User Feedback	Nov 1, 2023	Nov 3, 2023	Analyze user feedback for prototype improvements
6	Technical Architecture Design	2.1	Software Architects, Systems Engineers	Nov 4, 2023	Nov 7, 2023	Design technical architecture for the app
6.1	Architecture Review	6	Software Architects, Peer Review Team	Nov 8, 2023	Nov 10, 2023	Review and finalize app architecture



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7	Setup Development Environment	None	DevOps Engineers, Docker, Jenkins, Git	Nov 11, 2023	Nov 13, 2023	Set up development and CI/CD environment
7.1	Backend Development Sprint 1	6.1	Backend Developers, Node.js, Express.js, Database (e.g., MongoDB)	Nov 14, 2023	Nov 17, 2023	Develop initial backend features
8	Frontend Development Sprint 1	3.1	Front-end Developers, React Native or Similar Framework	Nov 18, 2023	Nov 21, 2023	Develop initial frontend features
8.1	Frontend and Backend Integration	7.1, 8.0	Full Stack Developers, RESTful APIs	Nov 22, 2023	Nov 24, 2023	Integrate frontend with backend services
9	Functional Testing	8.1	QA Testers, Selenium or Similar Testing Tool	Nov 25, 2023	Nov 27, 2023	Conduct functional testing of app features
9.1	Bug Fixing Sprint	9	Developers, QA Testers, JIRA or Similar Bug Tracking Tool	Nov 28, 2023	Nov 30, 2023	Address issues found during testing
10	Performance Optimization	8.1	Performance Engineers, Profiling Tools	Dec 1, 2023	Dec 2, 2023	Optimize app performance based on test results
10.1	Security Assessment	10	Security Analysts, Automated Security Scanners	Dec 1, 2023	Dec 2, 2023	Assess app for vulnerabilities
11	User Acceptance Testing (UAT) Setup	9.1	UAT Testers, UAT Scripting Tools	Nov 28, 2023	Nov 29, 2023	Prepare for UAT with selected users
11.1	User Acceptance Testing (UAT) Execution	11	UAT Testers, Feedback Collection Tools	Nov 30, 2023	Dec 2, 2023	Conduct UAT and collect user feedback
12	Compliance Verification	10.1	Compliance Officer, Legal Team	Dec 1, 2023	Dec 2, 2023	Ensure app meets regulatory and compliance standards
13	App Localization for Primary Markets	2.1	Localization Team, Translation Services	Nov 15, 2023	Nov 19, 2023	Localize app for different regions
13.1	Localization Testing	13	Linguistic QA Team, Localized Version Testers	Nov 20, 2023	Nov 24, 2023	Test and validate localized app versions

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14	Beta Release Preparation	11.1	Release Manager, DevOps Team	Nov 25, 2023	Nov 26, 2023	Prepare app for beta release
14.1	Beta Release to Test Group	14	Beta Testers, Email Notification Services	Nov 27, 2023	Nov 28, 2023	Distribute beta version to a selected user group
15	Beta Feedback Collection	14.1	Data Analysts, User Feedback Platforms	Nov 29, 2023	Nov 30, 2023	Collect and analyze feedback from beta testers
15.1	Beta Feedback Review and Adjustments	15	Product Owners, Developers	Dec 1, 2023	Dec 2, 2023	Review beta feedback and plan adjustments
16	Final QA and Bug Fixes	15.1	QA Team, Developers, Bug Tracking Tool	Nov 21, 2023	Nov 25, 2023	Final round of QA and fixing any remaining issues
16.1	Release Candidate Preparation	16	DevOps Team, Release Manager	Nov 26, 2023	Nov 27, 2023	Prepare the release candidate version
17	App Store Submission Process	16.1	Release Manager, App Store Liaisons	Nov 28, 2023	Nov 29, 2023	Submit the app to various app stores
17.1	App Store Optimization (ASO)	17	ASO Specialist, Marketing Team	Nov 30, 2023	Dec 1, 2023	Optimize app store listings for maximum visibility
18	Marketing Campaign Launch	6.1	Marketing Team, Social Media Platforms	Dec 1, 2023	Dec 2, 2023	Launch marketing campaign for app release
19	Monitoring Initial User Adoption	18	Data Analysts, Analytics Dashboard Tools	Dec 1, 2023	Dec 2, 2023	Monitor and report on initial user adoption rates
20	Setting Up Customer Support Channels	None	Customer Support Team, Support Software	Nov 10, 2023	Nov 14, 2023	Establish customer support channels for new users
20.1	Customer Support Staff Training	20	Support Staff, Training Manuals	Nov 15, 2023	Nov 19, 2023	Train staff on handling customer inquiries
21	Development of In-App Feedback Mechanisms	7.1	Mobile Developers, Feedback Service APIs	Nov 20, 2023	Nov 24, 2023	Implement feedback mechanisms within the app
21.1	In-App Feedback	21	QA Team, Feedback	Nov	Nov	Test in-app

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	System Testing		Collection Tools	25, 2023	29, 2023	feedback functionalities
22	Post-Release Monitoring Setup	None	IT Operations Team, Monitoring Software	Nov 30, 2023	Dec 1, 2023	Set up systems to monitor app post-release
22.1	Post-Release Issue Management	22	IT Operations Team, Issue Tracking Tool	Dec 1, 2023	Dec 2, 2023	Manage and address issues arising post-release
23	Social Media Engagement Analysis	18	Social Media Analysts, Engagement Tools	Nov 16, 2023	Nov 20, 2023	Analyze social media engagement and feedback
23.1	Adjusting Social Media Strategy	23	Social Media Team, Marketing Strategists	Nov 21, 2023	Nov 25, 2023	Adjust social media strategy based on analysis
24	Creation of How-To Videos for App Features	3.1	Video Production Team, Video Editing Software	Nov 26, 2023	Nov 30, 2023	Produce instructional videos for app features
24.1	Video Release on Social Media	24	Social Media Team, Content Distribution Networks	Dec 1, 2023	Dec 2, 2023	Distribute how-to videos across social platforms
25	Quality Assurance Team Retrospective	9.1	QA Team, Scrum Master	Nov 17, 2023	Nov 21, 2023	Review QA processes and identify improvements
25.1	Implement QA Process Improvements	25	QA Team, Process Management Tools	Nov 22, 2023	Nov 24, 2023	Implement identified QA process improvements
26	Final Legal Review before App Release	12	Legal Consultants, Compliance Checklists	Nov 25, 2023	Nov 26, 2023	Ensure all legalities are checked before release
26.1	Intellectual Property Rights Clearance	26	Legal Team, IP Management Tools	Nov 27, 2023	Nov 28, 2023	Clear all IP-related issues before release
27	Finalize App Release Notes	9.1	Technical Writers, Product Managers	Nov 29, 2023	Nov 30, 2023	Prepare release notes detailing the new features
27.1	Distribute Release Notes to Stakeholders	27	Marketing Team, Email Services	Dec 1, 2023	Dec 2, 2023	Distribute release notes to users and stakeholders
28	Monitor and Optimize Server	22	IT Operations Team, Server Monitoring	Dec 1, 2023	Dec 2, 2023	Ensure servers can handle increased

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	Load During Launch		Tools	2023	2023	load during launch
28.1	Server Load Balancing Adjustments	28	Network Engineers, Load Balancing Software	Dec 1, 2023	Dec 2, 2023	Adjust server load balancing as needed
29	In-App User Experience Survey Setup	21.1	UX Team, Survey Platforms	Nov 20, 2023	Nov 24, 2023	Set up in-app surveys to gather user experience data
29.1	Analyze In-App Survey Results	29	Data Analysts, UX Designers	Nov 25, 2023	Nov 29, 2023	Analyze survey results for future improvements
30	Post-Launch Press Release and Media Coordination	17.1	PR Team, Media Contacts	Nov 30, 2023	Dec 1, 2023	Coordinate with media outlets for post-launch coverage
30.1	Media Interviews and Q&A Preparation	30	Executive Team, PR Specialists	Dec 1, 2023	Dec 2, 2023	Prepare for interviews and Q&As with the media
31	Launch Day Social Media Monitoring	23.1	Social Media Team, Analytics Tools	Dec 1, 2023	Dec 2, 2023	Monitor social media for user reactions on launch day
31.1	Social Media Response Strategy Execution	31	Social Media Team, Community Managers	Dec 1, 2023	Dec 2, 2023	Engage with users on social media regarding the launch
32	Customer Service Readiness Assessment	20.1	Customer Service Team, QA Team	Nov 27, 2023	Nov 28, 2023	Ensure customer service is ready for launch queries
32.1	Customer Service Team Briefing on Launch Day	32	Customer Service Managers, Support Staff	Dec 1, 2023	Dec 2, 2023	Brief customer service team on handling launch day queries
33	Launch Day Tech Support Standby	22.1	IT Support Team, Technical Support Tools	Dec 1, 2023	Dec 2, 2023	IT support team prepared to address immediate issues
33.1	Post-Launch Tech Support Evaluation	33	IT Support Team, Feedback Collection Tools	Dec 2, 2023	Dec 2, 2023	Evaluate the tech support responses post-launch
34	Affiliate Marketing Program Setup	6.1	Marketing Team, Affiliate Networks	Nov 1, 2023	Nov 5, 2023	Set up an affiliate program for the app
34.1	Affiliate Marketing	34	Marketing Team,	Nov	Nov	Launch and

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	Program Launch		Affiliate Partners	6, 2023	10, 2023	manage the affiliate marketing program
35	User Tutorial Video Series Creation	24	Content Creation Team, Video Production Tools	Nov 11, 2023	Nov 15, 2023	Create a series of tutorial videos for app users
35.1	User Tutorial Video Series Release	35	Marketing Team, Content Distribution Networks	Nov 16, 2023	Nov 20, 2023	Release tutorial videos on various platforms
36	Influencer Content Creation Partnership	68.1	Influencers, Content Teams	Nov 21, 2023	Nov 25, 2023	Collaborate with influencers for content creation
36.1	Influencer Content Campaign Monitoring	36	Social Media Analysts, Influencers	Nov 26, 2023	Nov 30, 2023	Monitor influencer campaign performance
37	User Community Engagement Activities	38	Community Managers, Engagement Tools	Dec 1, 2023	Dec 2, 2023	Organize activities to boost community engagement
37.1	Community-Driven Feature Request Gathering	37	Product Owners, Community Managers	Dec 1, 2023	Dec 2, 2023	Collect and prioritize feature requests from the community
38	App Merchandising and Branding Material Design	None	Graphic Designers, Merchandising Partners	Oct 15, 2023	Oct 19, 2023	Design app-related merchandising for branding
38.1	Merchandise Production and Distribution	38	Production Vendors, Distribution Partners	Oct 20, 2023	Oct 24, 2023	Produce and distribute app merchandise
39	Post-Launch User Retention Analysis	19	Data Analysts, CRM Tools	Oct 25, 2023	Oct 29, 2023	Analyze user retention data post-launch
39.1	User Retention Strategy Refinement	39	Product Managers, Marketing Team	Oct 30, 2023	Nov 3, 2023	Refine strategies to improve user retention
40	Continuous Integration and Deployment Pipeline Review	7	DevOps Team, CI/CD Tools	Nov 4, 2023	Nov 8, 2023	Review and optimize the CI/CD pipeline
40.1	CI/CD Pipeline Enhancement	40	DevOps Engineers, Jenkins, GitLab	Nov 9, 2023	Nov 13, 2023	Optimize the CI/CD pipeline for efficiency
41	Customer Feedback	21.1	UX Team, Data	Nov	Nov	Analyze feedback

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	Analysis for Future Updates		Analysts	14, 2023	18, 2023	to identify potential updates
41.1	Update Implementation Plan Based on Feedback	41	Product Managers, Development Teams	Nov 19, 2023	Nov 23, 2023	Plan development updates based on user feedback
42	Cloud Services Cost Analysis	28.1	Cloud Services Manager, Financial Analysts	Nov 24, 2023	Nov 28, 2023	Analyze and optimize ongoing cloud services costs
42.1	Cloud Resource Allocation Optimization	42	Cloud Engineers, AWS, Azure, or GCP	Nov 29, 2023	Dec 2, 2023	Optimize cloud resource usage and allocation
43	App Update Rollout to Secondary Markets	13.1	Market Strategists, Localization Teams	Nov 17, 2023	Nov 21, 2023	Expand app rollout to additional global markets
43.1	Market-Specific User Engagement Analysis	43	Market Analysts, Engagement Tracking Tools	Nov 22, 2023	Nov 26, 2023	Analyze user engagement in new markets
44	In-App Purchase Feature Development	8.1	Backend Developers, Payment Gateway Integrations	Nov 27, 2023	Nov 29, 2023	Develop in-app purchase capabilities
44.1	In-App Purchase Testing and Validation	44	QA Team, Payment Processors like Stripe, PayPal	Nov 30, 2023	Dec 2, 2023	Test in-app purchase process to ensure proper function
45	Accessibility Features Implementation	3.1	Accessibility Engineers, VoiceOver, TalkBack	Oct 16, 2023	Oct 20, 2023	Implement accessibility features for the app
45.1	Accessibility Compliance Verification	45	Compliance Specialists, Accessibility Testing Tools	Oct 21, 2023	Oct 25, 2023	Verify the app meets accessibility standards
46	Scalability Testing for New Features	9	Performance Testing Team, Load Testing Tools	Oct 26, 2023	Oct 30, 2023	Test new features for scalability under load
46.1	Scalability Enhancement Plan	46	Software Architects, Systems Engineers	Oct 31, 2023	Nov 4, 2023	Plan enhancements to the app's scalability
47	Data Encryption and Security Measures Implementation	10.1	Security Team, Encryption Software	Nov 5, 2023	Nov 9, 2023	Implement data encryption and security measures

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47.1	Security Measures Testing and Compliance Review	47	Security Analysts, Compliance Team	Nov 10, 2023	Nov 14, 2023	Test security measures and review compliance
48	Employee Training on New Features for Customer Support	20.1	Training Department, Support Team Leads	Nov 15, 2023	Nov 19, 2023	Train employees on new features for better customer support
48.1	Creation of Support Scripts for New Features	48	Technical Writers, Support Team Leads	Nov 20, 2023	Nov 24, 2023	Develop support scripts for new features
49	Social Media Integration Testing	67.1	Social Media Team, IT Support	Nov 25, 2023	Nov 29, 2023	Test social media integrations within the app
49.1	Social Media Feature Rollout	49	Marketing Team, Social Media Platforms	Nov 30, 2023	Dec 2, 2023	Roll out new social media features to users
50	SEO Strategy Update for App Content	57.1	SEO Specialists, Content Creation Team	Nov 16, 2023	Nov 20, 2023	Update SEO strategies for app content and articles
50.1	SEO Performance Monitoring and Adjustment	50	Digital Marketing Team, Analytics Tools	Nov 21, 2023	Nov 25, 2023	Monitor SEO performance and make necessary adjustments
51	App Content Localization for Additional Languages	13	Localization Specialists, Translation Services	Nov 26, 2023	Nov 30, 2023	Localize app content into more languages
51.1	Post-Localization User Testing	51	Linguistic QA Team, Multilingual Users	Dec 1, 2023	Dec 2, 2023	Test the app with users of newly supported languages
52	Emergency Response Drill for App Operations	22	IT Operations Team, Emergency Response Team	Oct 17, 2023	Oct 19, 2023	Conduct emergency response drills for app operations
52.1	Review and Update Emergency Response Plan	52	Risk Management Team, IT Operations Team	Oct 20, 2023	Oct 24, 2023	Update the emergency response plan based on drill feedback
53	App Analytics and Monitoring Dashboard Setup	19	Data Analysts, Dashboard Tools (e.g., Grafana)	Oct 25, 2023	Oct 29, 2023	Set up a dashboard for monitoring app analytics

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53.1	Training Team on Dashboard Usage	53	IT Team, Data Analysts	Oct 30, 2023	Nov 3, 2023	Train relevant teams on using the analytics dashboard
54	User Data Privacy Audit	12	Privacy Officer, Data Security Team	Nov 4, 2023	Nov 8, 2023	Audit user data handling for privacy compliance
54.1	Implementation of Privacy Audit Recommendations	54	Developers, Privacy Officer	Nov 9, 2023	Nov 13, 2023	Implement changes based on privacy audit
55	Post-Launch Feature Enhancement Planning	41.1	Product Management Team, Developers	Nov 14, 2023	Nov 18, 2023	Plan enhancements based on post-launch feedback
55.1	Execution of Feature Enhancements	55	Development Team, Product Owners	Nov 19, 2023	Nov 23, 2023	Implement planned feature enhancements
56	App Maintenance Framework Development	None	DevOps Team, Maintenance Engineers	Nov 24, 2023	Nov 28, 2023	Develop a framework for ongoing app maintenance
56.1	Maintenance Framework Testing	56	QA Team, DevOps Team	Nov 29, 2023	Dec 2, 2023	Test the maintenance framework
57	App Release Follow-Up with Key Stakeholders	17	Project Manager, Key Stakeholders	Dec 1, 2023	Dec 2, 2023	Discuss the release outcomes with stakeholders
58	In-App Marketing Campaign for Feature Awareness	18	Marketing Team, In-App Notification Tools	Nov 6, 2023	Nov 10, 2023	Create an in-app marketing campaign for new features
58.1	Monitoring In-App Marketing Campaign Effectiveness	58	Data Analysts, Marketing Team	Nov 11, 2023	Nov 15, 2023	Monitor and analyze the effectiveness of in-app marketing
59	App Store Ratings and Review Enhancement Strategy	17.1	Marketing Team, Customer Success Team	Nov 16, 2023	Nov 20, 2023	Develop a strategy to improve app ratings and reviews
59.1	Execution of Ratings and Review Enhancement Actions	59	Customer Success Team, PR Team	Nov 21, 2023	Nov 25, 2023	Implement actions to improve ratings and reviews
60	Post-Launch Content	24.1	Content Team,	Nov	Nov	Plan content



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	Update Planning		Marketing Team	26, 2023	30, 2023	updates for post-launch
60.1	Content Update Implementation	60	Content Team, Development Team	Dec 1, 2023	Dec 2, 2023	Update app content based on the post-launch plan
61	Technical Debt Assessment	16.1	Software Architects, Development Team	Oct 18, 2023	Oct 22, 2023	Assess technical debt accumulated during development
61.1	Technical Debt Resolution Plan	61	Project Manager, Software Architects	Oct 23, 2023	Oct 27, 2023	Develop a plan to address technical debt
62	Continuous Monitoring System Optimization	22.1	IT Operations Team, Monitoring Tools (e.g., Nagios)	Oct 28, 2023	Nov 1, 2023	Optimize the continuous monitoring system for the app
62.1	Monitoring System Adjustment Based on Feedback	62	IT Operations Team	Nov 2, 2023	Nov 6, 2023	Adjust monitoring system based on operational feedback
63	App User Guide and Help Section Update	65.1	Technical Writers, UX Designers	Nov 7, 2023	Nov 11, 2023	Update the app's user guide and help section
63.1	Help Section User Testing	63	UX Research Team, Beta Testers	Nov 12, 2023	Nov 16, 2023	User testing for the updated help section in the app
64	Automated User Support Chatbot Development	20	AI Developers, UX Designers	Nov 17, 2023	Nov 21, 2023	Develop a chatbot for automated user support
64.1	Chatbot Integration and Testing	64	Developers, QA Team	Nov 22, 2023	Nov 26, 2023	Integrate and test the chatbot within the app
65	Partner and Affiliate Feedback Collection	46.1	Business Development Team, Affiliate Partners	Nov 27, 2023	Nov 29, 2023	Gather feedback from partners and affiliates
65.1	Partner and Affiliate Program Adjustments	65	Business Development Team	Nov 30, 2023	Dec 2, 2023	Adjust partner and affiliate programs based on feedback
66	Expansion of User Community and Outreach Programs	72.1	Community Managers, Social Media Managers	Dec 1, 2023	Dec 2, 2023	Expand outreach programs to grow the user community
67	Industry Conference Preparation for	None	Marketing Team, Event Coordinators	Oct 19, 2023	Oct 23, 2023	Prepare for showcasing app

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	Feature Showcasing			2023	2023	features at industry conferences
67.1	Industry Conference Attendance and Networking	67	Executive Team, Sales Team	Oct 24, 2023	Oct 28, 2023	Attend conferences and network for app promotion
68	User Onboarding Experience Improvement	32.1	UX Team, Mobile Developers	Oct 29, 2023	Nov 2, 2023	Enhance the user onboarding experience within the app
68.1	Onboarding Experience Feedback Loop	68	UX Team, Product Managers	Nov 3, 2023	Nov 7, 2023	Establish a feedback loop for ongoing onboarding improvements
69	Post-Launch App Store Optimization (ASO) Review	17.1	ASO Specialist, Digital Marketing Team	Nov 8, 2023	Nov 12, 2023	Review and refine ASO strategies post-launch
69.1	ASO Adjustments Based on App Performance	69	ASO Specialist, Marketing Team	Nov 13, 2023	Nov 17, 2023	Make ASO adjustments based on app performance data
70	User-Focused Feature Development Planning	41.1	Product Managers, User Experience Team	Nov 18, 2023	Nov 22, 2023	Plan development of new features based on user needs
70.1	Feature Development Sprints Planning	70	Development Team Leads, Scrum Master	Nov 23, 2023	Nov 27, 2023	Plan sprints for developing new user-requested features
71	App Interface Update Based on User Feedback	41	UI Designers, Front-end Developers	Nov 28, 2023	Dec 2, 2023	Update app interface to incorporate user feedback
71.1	User Interface (UI) Testing	71	QA Team, Beta Testers	Dec 1, 2023	Dec 2, 2023	Test the new UI updates for usability and bugs
72	Development of Additional App Widgets	8.1	Mobile Developers, Widget Toolkits	Oct 16, 2023	Oct 20, 2023	Develop widgets for home screen integration
72.1	Widgets Integration Testing	72	QA Team, Mobile Test Devices	Oct 21, 2023	Oct 25, 2023	Test the integration of new widgets
73	App Feedback and	59.1	UX Team, Mobile	Oct	Oct	Optimize prompts

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	Rating Prompt Optimization		Developers	26, 2023	30, 2023	for feedback and ratings in-app
73.1	Feedback Prompt Effectiveness Analysis	73	Data Analysts, UX Team	Oct 31, 2023	Nov 4, 2023	Analyze the effectiveness of the feedback prompts
74	Cross-Device Synchronization Features Development	8.1	Backend Developers, Systems Engineers	Nov 5, 2023	Nov 9, 2023	Develop features for syncing across multiple devices
74.1	Cross-Device Feature Testing	74	QA Team, Multiple Device Types	Nov 10, 2023	Nov 14, 2023	Test syncing features across different devices
75	Enhancements to In-App Reporting and Analytics	19	Data Scientists, Backend Developers	Nov 15, 2023	Nov 19, 2023	Enhance reporting and analytics features in the app
75.1	In-App Reporting Features Rollout	75	Product Managers, Marketing Team	Nov 20, 2023	Nov 24, 2023	Rollout enhancements to reporting and analytics
76	App Performance Tuning for New Devices	46	Performance Engineers, Device Testing Lab	Nov 25, 2023	Nov 29, 2023	Tune app performance for the latest devices
76.1	Performance Tuning Review	76	Tech Leads, QA Team	Nov 30, 2023	Dec 2, 2023	Review and assess the performance tuning efforts
77	Community Feedback Session for Future Roadmap	41.1	Community Managers, Product Owners	Dec 1, 2023	Dec 2, 2023	Host a session to gather feedback for the product roadmap
78	App Roadmap Update and Communication	77	Executive Team, Marketing Team	Oct 17, 2023	Oct 21, 2023	Update the app's roadmap and communicate it to users
78.1	Stakeholder Presentation on Updated Roadmap	78	Project Manager, Key Stakeholders	Oct 22, 2023	Oct 24, 2023	Present the updated roadmap to stakeholders
79	Press and Blogger Outreach for Feature Updates	30	PR Team, Influencer Marketing Team	Oct 25, 2023	Oct 29, 2023	Reach out to press and bloggers for update coverage
79.1	Media Coverage Analysis	79	Marketing Analysts, PR Team	Oct 30, 2023	Nov 3, 2023	Analyze media coverage and adjust PR strategies
80	App Gamification	70.1	Game Designers,	Nov	Nov	Plan gamification

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	Features Planning		Product Managers	4, 2023	8, 2023	features for user engagement
80.1	Gamification Features Development	80	Development Team, Game Design Consultants	Nov 9, 2023	Nov 13, 2023	Develop gamification features within the app
81	Gamification Features Testing	80.1	QA Team, Beta Testers	Nov 14, 2023	Nov 18, 2023	Test newly developed gamification features
81.1	Rollout of Gamification Features	81	Marketing Team, App Stores	Nov 19, 2023	Nov 23, 2023	Rollout gamification features to users
82	Third-Party Service Integration for Enhanced Features	8.1	Backend Developers, Third-Party APIs	Nov 24, 2023	Nov 28, 2023	Integrate third-party services for new features
82.1	Integration Testing with Third-Party Services	82	Integration Testers, QA Team	Nov 29, 2023	Dec 2, 2023	Test integration with third-party services
83	Data Backup and Recovery Procedures Update	56.1	IT Security Team, Data Management Tools	Dec 1, 2023	Dec 2, 2023	Update and test backup and recovery procedures
84	Training Sessions for New Internal Tools	7	Training Department, Internal Tool Developers	Oct 18, 2023	Oct 22, 2023	Conduct training for new tools used internally
84.1	Feedback Collection on Internal Tool Usage	84	Internal Tools Team, HR Department	Oct 23, 2023	Oct 27, 2023	Gather feedback from employees on new internal tools
85	Advanced Analytics for User Behavior Insights	64	Data Science Team, Advanced Analytics Software	Oct 28, 2023	Nov 1, 2023	Implement advanced analytics for deeper user insights

(Zecheru & Olaru, 2016).

## 3.2 DEPLOYMENT PLAN

The Deployment Plan for the Winter Mode v1.2 feature in the Electric Car Mobile App is meticulously structured to guarantee a smooth and efficient release on both Android and iOS platforms, ensuring user accessibility and satisfaction. Here is an illustrative outline of the deployment steps:

**Pre-Deployment Activities:** Our final development sprint is dedicated to perfecting the deployment package. For instance, we will conduct a thorough quality check of the 'heating scheduler' function to ensure it operates correctly across different smartphone models and operating systems.

**Deployment Readiness Review:** Before the launch, a deployment readiness review will be undertaken, akin to a final inspection before a vehicle leaves the production line. This includes validating that the 'remote defrost' feature performs consistently under varying network conditions.

**App Store Submission:** The app's submission to the Google Play Store and Apple App Store will be executed with precision. The submission will highlight the 'battery optimization for cold weather' feature, ensuring the app's listing accurately conveys the benefits of the new functionality.

**Monitoring and Support:** Post-release, the project team will closely monitor the deployment to address any technical issues promptly. We anticipate keen observation of the app's performance during peak usage times to ensure features like the 'cabin temperature pre-setting' function as intended.

**User Notification:** Users will be informed of the new update via in-app notifications. This communication will explain new features such as 'one-touch winter mode activation,' ensuring users are well-informed on utilizing the enhancements.

**Post-Deployment Review:** After deployment, a comprehensive review will assess the effectiveness of the launch process and gather user feedback, particularly on the usability of the 'automatic snow mode' for driving assistance. This review will inform future updates and improvements (Zelege & McCollum, 2021).

### 3.3 CHANGE CONTROL MANAGEMENT

The Change Control Management process for the Winter Mode v1.2 enhancement is a formalized system designed to ensure that any adjustments to the project scope, timeline, or budget are carefully assessed, authorized, and integrated.

Step	Description	Example
<b>Change Review</b>	The Project Manager conducts an initial assessment of the impact of proposed changes on project scope, resources, and schedule.	The Project Manager conducts an initial assessment of the impact of proposed changes on project scope, resources, and schedule.
<b>Change Control Board (CCB)</b>	Comprising the Project Manager, Scrum Master, and Product Owner, the CCB reviews change requests for value addition and project alignment.	The CCB reviews a request to enhance the user interface for the 'ice warning system', considering user experience and implementation complexity.
<b>Approval or</b>	The CCB approves or rejects	The CCB approves a 'preheat

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<b>Rejection</b>	changes, potentially with conditions for further analysis.	scheduling' feature, conditional upon further UX design reviews.
<b>Implementation of Changes</b>	Approved changes are incorporated into the project plan and assigned within the sprint backlog.	An approved efficiency improvement for the 'defrost feature' is scheduled for the next sprint cycle and assigned to the relevant development team.
<b>Communication</b>	All changes are communicated to stakeholders, with the Project Manager updating project documentation.	Enhancements to the 'remote start' functionality are communicated to all team members, with updates made to the project plan to reflect these changes.
<b>Change Log Maintenance</b>	A Change Log is maintained to record the details of all changes, their rationale, and their impacts.	The Change Log includes records of each approved change, such as the decision to optimize the 'climate control responsiveness' for colder weather.

(Chen et al., 2015).

## 4 STAKEHOLDER MANAGEMENT

As we embark on the journey to enhance the Electric Car Mobile App, it is paramount to recognize the invaluable role our stakeholders play. The following table outlines the key stakeholders, their specific roles in the project, and the importance of their contributions. Effective stakeholder management and collaboration are at the heart of our approach, ensuring that we capture diverse perspectives and align our efforts with the broader project goals (Dağlı,2018).

Stakeholder Name	Stakeholder Title	Role on Project	Notes
End Users	Car Owners	Primary beneficiaries; provide iterative feedback	Crucial for user testing and capturing real-world feedback.
Development Team	Software Developers	Responsible for sprint-centric development and rigorous testing	They transform the requirements into functional features.
Product Owners	Project Product Owners	Bridge the gap between user feedback and development	Ensure features are developed in line with user needs and



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			prioritize them accordingly.
Scrum Master	Project Scrum Master	Oversee the Scrum process	Makes sure the team stays on track, follows Scrum practices, and remains motivated.
Marketing and Communication Team	Marketing Professionals	Responsible for promoting the update and gathering user feedback	Play a crucial role in updating users and creating buzz around the new feature.
Executive Leadership	Company Executives	Provide strategic oversight and final project approvals	Their decisions and approvals can influence the direction and pace of the project.

## 5 QUALITY MANAGEMENT

Quality management within the scope of the Electric Car Mobile App Enhancement project will be centered around ensuring that the new "Winter Mode" functionality not only meets but exceeds our established standards of performance and user experience. In order to achieve this, the following measures will be executed (Betta & Iwko, 2022).

### 1. Consistency of Interface Layouts:

- Regular reviews of the app's interface will be conducted to ensure that all layouts are consistent with the established design standards. This will include checks during each development sprint and post-deployment.

### 2. Defect Management:

- A zero-defect policy will be adopted for critical requirements, with a rigorous bug-tracking system in place. Any defects identified will be logged, addressed, and tracked to resolution.

### 3. Quality Inspections and Audits:

- The project will undergo scheduled inspections and audits to verify that quality standards are being adhered to. This will include code reviews, design audits, and user experience evaluations.

### 4. Formal Testing Procedures:

- Formal testing will be carried out, including unit testing, integration testing, and user acceptance testing (UAT). All findings will be documented in a defect tracking system, with defects being addressed in a timely manner.

**5. Traceability Matrix Utilization:**

- A traceability matrix will be used to ensure that all requirements, particularly critical ones, are being met throughout the development process. This will be reviewed at the end of each sprint and before the final release.

**6. Performance Metrics:**

- Key performance indicators (KPIs) will be established to measure app functionality, such as load times, response times, and error rates.

**7. User Feedback Integration:**

- User feedback will be collected continuously through beta testing and after the launch. This feedback will play a critical role in ongoing quality management and feature enhancement.

**8. Quality Training:**

- The development and QA teams will receive ongoing training on quality standards and the latest quality management techniques.

**9. Continuous Improvement:**

- Embrace a culture of continuous improvement, utilizing feedback from all quality measures to inform development cycles and product updates.

By upholding these quality management protocols, we aim to deliver an enhanced mobile app that provides a seamless and intuitive experience for activating and managing the car's winter functions (Drăgolici Nuțoaica, 2018).

## 6 COMMUNICATIONS MANAGEMENT

Effective communication is the linchpin of any successful project, and for the Winter Mode v1.2 enhancement of the Electric Car Mobile App, it is particularly pivotal. The Communication Management Plan is tailored to ensure all project stakeholders are kept informed of progress, changes, and decisions throughout the project lifecycle.

The plan is designed to support the Scrum methodology, facilitating the rapid iteration and collaboration essential to agile project management. It acknowledges the diverse needs of stakeholders, from developers and product owners who require detailed technical updates, to executive leadership and end users who need higher-level progress reports and feature introductions.

Key components of the Communication Management Plan for this project would include:

- **Regular Updates:** Keeping all stakeholders informed of the project's status through scheduled communications such as daily stand-ups, sprint reviews, and retrospectives.
- **Responsiveness:** Ensuring that communication channels are open for stakeholders to provide feedback, which is crucial for agile, iterative development.
- **Clarity:** Delivering clear and concise information tailored to the audience, whether it is technical details for the development team or strategic updates for leadership.
- **Documentation:** Maintaining comprehensive records of all communications to provide a clear audit trail and to support project transparency.

The communication plan will be pivotal in ensuring that the project remains on track, that stakeholder expectations are managed, and that the final product – a seamlessly integrated Winter Mode feature – meets the project's high standards and user needs (Nonato et al., 2023).

## 6.1 COMMUNICATION MATRIX

<b>Responsible Party/ Situation</b>	<b>Audience</b>	<b>Vehicles of communication</b>	<b>Frequency</b>	<b>Medium</b>	<b>Feedback Mechanisms/ Notes</b>
Project Manager (Weekly Updates)	Entire Project Team	Weekly Status Meeting	Weekly, Mondays @9am	In-person/Video Call, Email Summary	Questions via email; addressed in next meeting
Scrum Master (Daily Stand-ups)	Development Team	Daily Scrum Meeting	Weekdays @9am	In-person/Video Call	Immediate verbal feedback during the meeting
Product Owner (Feature Review)	Executive Leadership, Marketing Team	Sprint Review Meeting	End of Each Sprint	Presentation, In-person/Video Call	Feedback via comment cards collected post-meeting
Marketing and Communication Team (Launch Update)	End Users, Stakeholders	Release Newsletter	At Release Milestones	Email, Newsletter	User feedback collected via survey link in

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					email
QA Lead (Testing Feedback)	Development Team, Product Owner	Testing Summary Report	After Testing Cycles	Email, Document Share	Responses and questions via dedicated Slack channel
Project Manager (Change Announcements)	Entire Project Team, Stakeholders	Ad Hoc Meetings as needed	As Needed	Email, In- person/Video Call	Follow-up meetings scheduled for significant changes

(Batista et al., 2023).

## **7 PROCUREMENT MANAGEMENT/ HUMAN RESOURCE MANAGEMENT**

### **Introduction to Resource Allocation:**

In the realm of IT project management, the prudent allocation of resources is pivotal for achieving project milestones in a timely and efficient manner. A comprehensive resource management plan has been developed for the Electric Car Mobile App Enhancement project. This encompasses the procurement of technical resources, the staffing of skilled personnel, and the management of these assets throughout the project lifecycle (Jainendrakumar, 2015).

### **Project Resources**

#### **Human Capital:**

- A multi-disciplinary **project team** consisting of developers, designers, and analysts
- **Quality Assurance professionals** who will ensure the app adheres to the highest standards

- **Security experts** tasked with safeguarding the app against cyber threats
- **Support personnel** to assist users and maintain service excellence post-launch

**Technological Tools:**

- Advanced **software development tools** and environments for creating a robust application
- **Project management software** that enables efficient tracking of progress and issues
- **Communication platforms** to facilitate seamless interactions within the project team
- **Design and prototyping utilities** that help visualize and iterate on the app's user interface

**Equipment:**

- An array of **mobile devices** for comprehensive app testing across diverse hardware
- **Server infrastructure** that supports the backend components with reliability
- **Network hardware** to ensure robust performance during development and deployment phases

**Additional Provisions:**

- **Cloud services** for scalable storage and computing needs
- **Software licenses** to comply with legal requirements and support development efforts
- **Educational materials** for continuous learning and skill enhancement of the project team

## **Procurement Management Plan**

**Vendor Engagement:**

- Engage in a meticulous **vendor selection process** to ensure quality and value
- Establish **contractual agreements** that reflect the project's dynamic requirements
- Implement **vendor oversight** to maintain adherence to service level agreements

**Licensing and Regulation:**

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- Manage **software licenses** effectively to avoid compliance pitfalls
  - Stay abreast of **IT regulations** to ensure all procurement activities are legally sound
- (Jainendrakumar, 2015).

## **Human Resource Management Plan**

### **Team Development:**

- **Recruitment strategies** to attract top-tier talent for project roles
- **Ongoing training initiatives** to ensure skillsets remain current and competitive
- **Performance tracking** to align individual contributions with project objectives

### **Workforce Optimization:**

- Allocate human resources efficiently to meet the ebb and flow of project demands
  - Implement **employee retention programs** to foster a motivated and stable team
  - Conduct **regular compliance training** to uphold ethical standards and data security
- (Jelena Ilić, 2021).



## **Appendix A: Project Management Plan Approval**

The undersigned acknowledge they have reviewed the 'Electric Car Mobile App Enhancement' **Project Management Plan** and agree with the approach it presents. Changes to this **Project Management Plan** will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	AvinashBunga	Date:	10/29/2023
Print Name:	Avinash Bunga		
Title:	Project Manager		
Role:	Project Lead		
<hr/>			
Signature:	SictucEkwo	Date:	10/25/2023
Print Name:	Dr. Sictuc Ekwo		
Title:	Project Sponsor		
Role:	Approval Authority		
<hr/>			

## APPENDIX B: CHARACTERISTICS OF A GOOD PM AND TEAM

Role	Characteristic	Description
<b>Project Manager (PM)</b>	Leadership	Effective leadership qualities to inspire and guide the team towards achieving the project goals.
	Communication Skills	Ability to convey information clearly and concisely to all stakeholders.
	Problem Solving	Capability to identify, analyze, and solve unexpected issues.
	Risk Management	Proactively identifies potential risks and creates mitigation plans.
	Decision-Making	Takes timely decisions after evaluating pros and cons.
	Time Management	Efficiently allocates and utilizes time to meet project deadlines.
	Adaptability	Adjusts to changing circumstances or new information without compromising project objectives.

(Bočková &amp; Čepelová, 2023).

<b>Role</b>	<b>Characteristic</b>	<b>Description</b>
<b>Project Team</b>	Collaboration	Team members work together seamlessly, sharing knowledge and resources.
	Diverse Skill Set	The team possesses a mix of skills and expertise for all project needs.
	Accountability	Each member understands their role and is responsible for their tasks and outcomes.
	Motivation	Team members are enthusiastic and driven.
	Problem-Solving	The team collaboratively addresses challenges using diverse expertise.
	Open Communication	An environment where members voice opinions, share concerns, and provide feedback.

(Sokol, Bronin, Karnaukh, & Bilova, 2020).

## APPENDIX C: PROJECT METHODOLOGY

### Selected Methodology: Scrum

#### Introduction:

The Scrum project management methodology is agile and product development approach that prioritizes flexibility, collaboration, and customer feedback. Given the user-centric nature of our Electric Car Mobile App Enhancement, the iterative sprint-based approach of Scrum aligns perfectly with our goals (Betta & Iwko, 2022).

#### Key Features:

1. **Iterative Development:** Sprints, which are time-boxed iterations of two to four weeks, are used to break down development.
2. **Stakeholder Collaboration:** Regular interactions with stakeholders, such as daily stand-ups and sprint reviews, ensure continuous feedback integration.
3. **Adaptive Planning:** Allows the team to prioritize tasks and adapt to changes quickly based on stakeholder feedback and project requirements (Betta & Iwko, 2022).

#### Differences from the Standard Template:

1. **Inclusions Specific to Scrum:**
  - **Sprint Planning:** Meetings to determine the tasks to be completed during each sprint's start.
  - **Sprint Retrospectives:** End-of-sprint meetings to review what went well and what can be improved in the next sprint.
2. **Exclusions from the Standard Template:**
  - **Fixed Scope:** In Scrum, the scope is flexible, with features prioritized based on stakeholder value.

### 3. Modifications to the Standard Template:

- **User Stories:** Modified the requirement gathering process to be user-centric, focusing on creating user stories that provide direct user value.
- **Burndown Charts:** Introduced this tool to track work completed during a sprint, ensuring the team stays on track (Betta & Iwko, 2022).

#### Benefits of Using Scrum:

1. **Customer Satisfaction:** Scrum prioritizes user feedback to make sure the final product meets their needs.
2. **Flexibility:** Regular reviews and adaptability allow for changes to be incorporated even late in the development process.
3. **Increased Collaboration:** Regular sprint reviews and daily stand-ups guarantee that all team members are in sync with the project's goals (Pope-Ruark, 2012).

#### Potential Challenges:

1. **Change Management:** Constant changes can sometimes lead to scope creep if not managed properly.
2. **Resource Availability:** Scrum requires dedicated team members for the duration of the project, which might not always be feasible.
3. **Continuous Stakeholder Engagement:** Stakeholders need to be engaged throughout the project, which could be a challenge if they are not available (Robinson, 2023).

**Conclusion:**

As winter nears, the importance of easy-to-use technology in our daily lives becomes more critical. Choosing the Scrum method for improving our Electric Car Mobile App is smart and well-timed. The “Winter Mode” we are adding is all about trust and comfort — two things everyone needs when cold outside.

Scrum lets us work in short, productive bursts, called sprints, and get feedback quickly to ensure we make a product that helps drivers when the temperature drops. Our goal is clear: when winter comes, our users should get into a car that’s ready to go and warm, thanks to our app.

Working with Scrum means we all developers, managers, and users work together closely. It is not just about throwing in a new feature; it is about making every day easier for our users. With the improved app, we aim to make driving in winter safer and more enjoyable.

In the end, updating our app is more than just a tech fix. It is our promise to be there for our users when they need us most. Over the next eight weeks, guided by Scrum and what our users tell us, we will introduce an update that’s right on time and makes a difference for winter driving.

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