
ELECTRIC CAR MOBILE APP ENHANCEMENT

PROJECT MANAGEMENT PLAN

Version 1.2

11/12/2023

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).

Versio n #	Implemented By	Revision Date	Approved By	Approval Date	Reason
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	Dependencies	Resources	Start Date	End Date	Notes
1.0 Requirement Analysis	None	Product Owners, Business Analysts	Oct 1, 2023	Oct 2, 2023	Define user stories for "Winter Mode" features.
1.1 User Story Development	1.0	Business Analysts	Oct 3, 2023	Oct 4, 2023	Develop detailed user stories for "Winter Mode" features.
2.0 UI/UX Design Sprint	1.1	Design Team	Oct 5, 2023	Oct 9, 2023	Create UI/UX designs for "Winter Mode".
2.1 Design Review & Approval	2.0	Product Owners	Oct 10, 2023	Oct 11, 2023	Review and finalize UI/UX designs for development.
3.0 Development Sprint 1	2.1	Dev Team	Oct 12, 2023	Oct 19, 2023	Develop core functionalities of "Winter Mode".
3.1 Development Sprint 2	3.0	Dev Team	Oct 20, 2023	Oct 27, 2023	Develop additional features and refine core functionalities.
4.0 QA & Testing	3.1	QA Team	Oct	Nov	Execute test cases and

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Sprint			28, 2023	1, 2023	report bugs.
4.1 User Acceptance Testing	4.0	Selected End Users	Nov 2, 2023	Nov 4, 2023	Collect user feedback on the feature and refine accordingly.
5.0 Deployment Preparation	4.1	DevOps Team	Nov 5, 2023	Nov 9, 2023	Prepare for app update release, setup app store listings.
5.1 Deployment & Go-Live	5.0	DevOps Team	Nov 10, 2023	Nov 12, 2023	Release the updated app to Android and iOS platforms.
6.0 Marketing Campaign Planning	None	Marketing Team	Nov 13, 2023	Nov 17, 2023	Plan the marketing campaign for "Winter Mode".
6.1 Marketing Campaign Execution	6.0	Marketing Team	Nov 18, 2023	Nov 22, 2023	Execute the marketing campaign for "Winter Mode".
7.0 Post-Deployment Monitoring Setup	5.1	DevOps Team, Data Analyst	Nov 23, 2023	Nov 24, 2023	Set up monitoring tools for new feature.
7.1 Post-Deployment Data Collection	7.0	Data Analyst	Nov 25, 2023	Nov 26, 2023	Collect initial performance data.

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8.0 User Feedback Collection	7.1	User Research Team	Nov 27, 2023	Nov 28, 2023	Set up feedback channels and surveys.
8.1 User Feedback Analysis	8.0	Data Analyst, Product Owners	Nov 29, 2023	Nov 30, 2023	Analyze feedback for potential improvements.
9.0 Performance Tuning Plan	8.1	Performance Engineers	Dec 1, 2023	Dec 1, 2023	Develop a plan to adjust features based on feedback.
9.1 Performance Tuning Implementation	9.0	Dev Team	Dec 2, 2023	Dec 2, 2023	Implement performance adjustments.
10.0 Finalize User Documentation	8.1	Technical Writers	Nov 23, 2023	Nov 24, 2023	Update user manuals and online help documentation.
10.1 Documentation Review & Publish	10.0	Documentation Team	Nov 25, 2023	Nov 26, 2023	Review for accuracy and publish updated documents.
11.0 Customer Service Training	10.1	Training Department	Nov 27, 2023	Nov 28, 2023	Train customer service on new features for support readiness.

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11.1 Training Material Distribution	11.0	Training Department, HR	Nov 29, 2023	Nov 30, 2023	Distribute training materials and guides to staff.
12.0 App Store Optimization (ASO)	5.1	Marketing Team	Dec 1, 2023	Dec 2, 2023	Optimize app store listings for visibility.
12.1 ASO Monitoring & Adjustment	12.0	Marketing Analyst	Dec 2, 2023	Dec 2, 2023	Monitor ASO performance and make necessary adjustments.
13.0 Social Media Campaign Launch	6.1	Social Media Team	Nov 23, 2023	Nov 24, 2023	Launch campaign on social media platforms.
13.1 Social Media Engagement Analysis	13.0	Social Media Analyst	Nov 25, 2023	Nov 26, 2023	Analyze engagement and adjust campaign as needed.
14.0 Feature Enhancement Sprint Planning	9.1	Dev Team, Scrum Master	Nov 27, 2023	Nov 28, 2023	Plan sprints for post- launch feature enhancements.
14.1 Enhancement Development Sprint 1	14.0	Dev Team	Nov 29, 2023	Nov 30, 2023	Develop enhancements based on user feedback.
15.0 Enhancement QA & Testing	14.1	QA Team	Dec 1, 2023	Dec 2, 2023	Test new enhancements for quality assurance.

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			2023	2023	
15.1 User Testing for Enhancements	15.0	Selected End Users	Dec 2, 2023	Dec 2, 2023	Collect user feedback on the new enhancements.
16.0 Stakeholder Update Meeting	14.1	Project Manager, Key Stakeholders	Nov 27, 2023	Nov 27, 2023	Update stakeholders on project progress and gather input.
16.1 Action Item Assignment	16.0	Project Coordinator	Nov 28, 2023	Nov 28, 2023	Assign action items from stakeholder meeting.
17.0 Sprint Retrospective	14.1	Scrum Master, Dev Team	Nov 29, 2023	Nov 29, 2023	Review sprint outcomes and identify areas for improvement.
17.1 Retrospective Action Plan	17.0	Scrum Master	Nov 30, 2023	Nov 30, 2023	Create an action plan based on retrospective feedback.
18.0 Continuous Integration Setup	3.1	DevOps Engineer	Dec 1, 2023	Dec 1, 2023	Set up a continuous integration system for development.
18.1 Continuous Deployment Process	18.0	DevOps Engineer	Dec 2, 2023	Dec 2, 2023	Implement continuous deployment for iterative releases.
19.0 Security	4.1	Security Analyst	Nov	Nov	Ensure "Winter Mode"

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Compliance Check			27, 2023	27, 2023	features meet security standards.
19.1 Security Update Implementation	19.0	Security Team	Nov 28, 2023	Nov 28, 2023	Apply necessary security updates to the app.
20.0 Accessibility Features Review	2.1	Accessibility Consultant	Nov 29, 2023	Nov 29, 2023	Review app for accessibility compliance.
20.1 Accessibility Improvement Implementation	20.0	UI/UX Designer, Developer	Nov 30, 2023	Nov 30, 2023	Implement changes to improve app accessibility.
21.0 Load Testing	18.1	QA Engineer	Dec 1, 2023	Dec 1, 2023	Conduct load testing to simulate peak usage.
21.1 Load Testing Analysis and Optimization	21.0	Performance Analyst	Dec 2, 2023	Dec 2, 2023	Analyze load testing results and optimize performance.
22.0 Legal Review for Compliance	None	Legal Team	Nov 27, 2023	Nov 27, 2023	Review project compliance with legal standards.
22.1 Compliance Issues Resolution	22.0	Project Manager, Legal Team	Nov 28, 2023	Nov 28, 2023	Resolve any legal and compliance issues identified.

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23.0 Beta Testing Program Setup	15.1	Beta Program Coordinator	Nov 29, 2023	Nov 29, 2023	Set up a beta testing program for early adopters.
23.1 Beta Testing Feedback Collection	23.0	User Research Team	Nov 30, 2023	Nov 30, 2023	Collect and analyze feedback from beta testing.
24.0 Final Go/No-Go Decision	19.1, 20.1, 23.1	Executive Team	Dec 1, 2023	Dec 1, 2023	Make final decision to proceed with release.
24.1 Release Announcement Preparation	24.0	Marketing Team, Communications Team	Dec 2, 2023	Dec 2, 2023	Prepare public and internal announcements for release.
25.0 Data Privacy Audit	None	Data Privacy Officer	Nov 27, 2023	Nov 27, 2023	Audit app for data privacy compliance.
25.1 Data Privacy Enhancements	25.0	Developer, Data Privacy Officer	Nov 28, 2023	Nov 28, 2023	Implement enhancements based on privacy audit.
26.0 Final Code Review	17.1	Lead Developer, Dev Team	Nov 29, 2023	Nov 29, 2023	Conduct a comprehensive code review before release.
26.1 Code Optimization	26.0	Dev Team	Nov 30, 2023	Nov 30, 2023	Optimize code based on review findings.

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			2023	2023	
27.0 Release Packaging	24.1	DevOps Team	Dec 1, 2023	Dec 1, 2023	Package the final version of the app for release.
27.1 Release Validation	27.0	QA Team	Dec 2, 2023	Dec 2, 2023	Validate the release package to ensure readiness.
28.0 Internal Communication of Release	27.1	Internal Communications	Nov 27, 2023	Nov 27, 2023	Communicate release plans and dates internally.
28.1 Internal Q&A Session	28.0	HR, Project Manager	Nov 28, 2023	Nov 28, 2023	Conduct a Q&A session for internal staff on the new release.
29.0 Press Release Drafting	24.1	PR Team	Nov 29, 2023	Nov 29, 2023	Draft a press release for the new app version.
29.1 Press Release Distribution	29.0	PR Team	Nov 30, 2023	Nov 30, 2023	Distribute the press release to media outlets.
30.0 Customer Feedback System Update	8.1	IT Support Team	Dec 1, 2023	Dec 1, 2023	Update systems for collecting customer feedback.
30.1 Feedback	30.0	QA Team	Dec	Dec	Test the updated

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System Testing			2, 2023	2, 2023	customer feedback system.
31.0 App Analytics Integration	None	Data Analyst, Developer	Nov 27, 2023	Nov 27, 2023	Integrate analytics tools into the app for data collection.
31.1 Analytics Data Review	31.0	Data Analyst	Nov 28, 2023	Nov 28, 2023	Review analytics data for insights into app usage.
32.0 Technical Support Plan	None	Support Manager	Nov 29, 2023	Nov 29, 2023	Develop a plan for technical support post-launch.
32.1 Technical Support Staff Training	32.0	Training Department	Nov 30, 2023	Nov 30, 2023	Train support staff on the new release and expected issues.
33.0 Knowledge Base Update	10.1	Technical Writers, Support Team	Dec 1, 2023	Dec 1, 2023	Update the online knowledge base with new information.
33.1 Knowledge Base Review	33.0	QA Team, Support Team	Dec 2, 2023	Dec 2, 2023	Review the knowledge base updates for accuracy and clarity.
34.0 Inventory of Support Tickets	None	Support Team	Nov 27, 2023	Nov 27, 2023	Take inventory of support tickets for patterns.

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34.1 Support Ticket System Update	34.0	IT Support Team	Nov 28, 2023	Nov 28, 2023	Update the ticketing system for better tracking and resolution.
35.0 Monitoring Tools Assessment	None	IT Admin, DevOps Team	Nov 29, 2023	Nov 29, 2023	Assess current monitoring tools and identify needs.
35.1 Monitoring Tools Upgrade	35.0	IT Admin	Nov 30, 2023	Nov 30, 2023	Upgrade monitoring tools for improved performance tracking.
36.0 Update Training Modules for New Features	10.1	Training Team	Dec 1, 2023	Dec 1, 2023	Update existing training modules to include new app features.
36.1 Conduct Training Sessions	36.0	Training Team, End Users	Dec 2, 2023	Dec 2, 2023	Conduct sessions to train users on new features.
37.0 Final Security Audit	19.1	Security Team	Nov 30, 2023	Nov 30, 2023	Perform a final audit to ensure all security measures are in place.
37.1 Remediate Security Findings	37.0	Security Team, Dev Team	Dec 1, 2023	Dec 1, 2023	Address any issues found during the security audit.
38.0 Update Project Schedule Post-	8.1	Project Manager	Dec 2, 2023	Dec 2, 2023	Update the project schedule based on user

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Feedback			2023	2023	feedback received.
38.1 Schedule Review Meeting	38.0	Project Manager, Scrum Master	Dec 2, 2023	Dec 2, 2023	Review the updated project schedule with the project team.
39.0 Update Risk Management Plan	None	Risk Manager	Nov 30, 2023	Nov 30, 2023	Update the risk management plan based on recent project developments.
39.1 Risk Review Session	39.0	Project Team	Dec 1, 2023	Dec 1, 2023	Conduct a session to review and address potential risks.
40.0 Implement User Suggestion Mechanism	None	Development Team	Dec 2, 2023	Dec 2, 2023	Implement a feature for users to suggest improvements.
40.1 Monitor User Suggestions	40.0	Product Team	Dec 2, 2023	Dec 2, 2023	Begin monitoring and categorizing user suggestions.
41.0 Prepare Maintenance Plan	None	Maintenance Team	Nov 30, 2023	Nov 30, 2023	Draft a maintenance plan for the app post-release.
41.1 Maintenance Plan Review	41.0	Maintenance Team, Product Owners	Dec 1, 2023	Dec 1, 2023	Review the maintenance plan with stakeholders.

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42.0 Develop Additional Language Support	None	Localization Team	Dec 2, 2023	Dec 2, 2023	Develop and integrate additional language support into the app.
42.1 Localization Testing	42.0	QA Team, Localization Team	Dec 2, 2023	Dec 2, 2023	Test the new language versions for accuracy.
43.0 Compile User Manuals	None	Technical Writers	Nov 30, 2023	Nov 30, 2023	Compile user manuals for new and updated features.
43.1 Distribute User Manuals	43.0	Marketing Team, Support Team	Dec 1, 2023	Dec 1, 2023	Distribute the latest user manuals to customers and support teams.
44.0 Cloud Infrastructure Upgrade	None	IT Infrastructure Team	Dec 2, 2023	Dec 2, 2023	Upgrade cloud infrastructure to support new app features.
44.1 Infrastructure Testing	44.0	IT Infrastructure Team, QA Team	Dec 2, 2023	Dec 2, 2023	Test upgraded infrastructure to ensure it meets new demands.
45.0 Establish Change Request Process	None	Project Manager	Nov 30, 2023	Nov 30, 2023	Establish a formal process for handling change requests.
45.1 Process Change	45.0	Training Team	Dec	Dec	Train team on new

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Request Training			1, 2023	1, 2023	change request process.
46.0 Performance Metrics Definition	None	Project Manager, Data Analyst	Dec 2, 2023	Dec 2, 2023	Define key performance metrics for project success.
46.1 Performance Dashboard Setup	46.0	IT Support Team, Data Analyst	Dec 2, 2023	Dec 2, 2023	Set up a dashboard to monitor defined performance metrics post-launch.
47.0 Implement Feedback Loop for Future Updates	45.1	Development Team, Product Team	Dec 1, 2023	Dec 1, 2023	Create a system to incorporate user feedback into future development cycles.
47.1 Feedback Loop Testing	47.0	QA Team	Dec 2, 2023	Dec 2, 2023	Test the newly implemented user feedback system for efficacy.
48.0 Create a Public API for Third-Party Developers	None	API Development Team	Nov 30, 2023	Nov 30, 2023	Develop a public API for integration into third-party services.
48.1 API Documentation and Developer Portal	48.0	Technical Writers, Web Developer	Dec 1, 2023	Dec 1, 2023	Create comprehensive documentation and a developer portal for the

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					new API.
49.0 Prepare for Industry Conference Presentation	None	Marketing Team, Product Owners	Dec 2, 2023	Dec 2, 2023	Prepare materials and demos for an upcoming industry conference.
49.1 Industry Conference Rehearsal	49.0	Marketing Team, Product Owners	Dec 2, 2023	Dec 2, 2023	Conduct a rehearsal for the industry conference presentation.
50.0 Project Wrap-Up and Final Reporting	49.1	Project Manager, Project Team	Dec 2, 2023	Dec 2, 2023	Compile final reports and wrap up the project documentation.
50.1 Project Closure Meeting	50.0	Project Manager, Executive Team	Dec 2, 2023	Dec 2, 2023	Hold a meeting to formally close the project and discuss lessons learned.

(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
Change Review	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.
Change Control Board (CCB)	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.
Approval or Rejection	The CCB approves or rejects changes, potentially with conditions for further analysis.	The CCB approves a 'preheat scheduling' feature, conditional upon further UX design reviews.

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Implementation of Changes	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.
Communication	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.
Change Log Maintenance	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:

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

Responsible Party/ Situation	Audience	Vehicles of communication	Frequency	Medium	Feedback Mechanisms/ Notes
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 email

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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).

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		
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Signature:	SictucEkwo	Date:	10/25/2023
Print Name:	Dr. Sictuc Ekwo		
Title:	Project Sponsor		
Role:	Approval Authority		
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APPENDIX B: CHARACTERISTICS OF A GOOD PM AND TEAM

Role	Characteristic	Description
Project Manager (PM)	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 & Čepelová, 2023).

Role	Characteristic	Description
Project Team	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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