

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

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INTRODUCTION 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: 15 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 timeconstrained (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		Dependencies	Resources	Start Date	End Date	Notes	Budget
	Decised by the	Name	Project Manager, Scrum	Oct 1,	Oct 3,	Project charter, initial	Ф4.000
1	Project Initiation Initial Team	None	Master Entire Project	2023 Oct 1,	2023 Oct 3, 2023	documentation Discuss project	\$4,000 Included
1.1	Meeting Requirement Analysis	1	Team Business Analysts, Key Stakeholders	2023 Oct 4, 2023	Oct 6, 2023	Gather software requirements	in 1 \$3,500
2.1	Documentation of Requirements	2	Business Analysts	Oct 4, 2023	Oct 6, 2023	Document detailed requirements	Included in 2
3	Competitor Analysis	2	Market Research Team	Oct 7, 2023	Oct 10, 2023	Analyze competing products	\$3,500
3.1	Analysis Report Creation	3	Market Research Team	Oct 7, 2023	Oct 10, 2023	Compile analysis into a report	Included in 3
4	Design Prototyping	2.1	UX/UI Design Team	Oct 11, 2023	Oct 14, 2023	Create initial design mockups	\$4,000
4.1	Design Review	4	UX/UI Design Team, Stakeholders	Oct 11, 2023	Oct 14, 2023	Review and finalize designs	Included in 4
5	Development Environment Setup	4.1	IT Support, Development Team	Oct 15, 2023	Oct 17, 2023	Prepare development environments	\$3,000
5.1	Source Control Configuration	5	IT Support, Development Team	Oct 15, 2023	Oct 17, 2023	Set up version control systems	Included in 5
6	Development Sprint 1	5.1	Development Team	Oct 18, 2023	Oct 25, 2023	Develop core functionalities	\$20,000
6.1	Code Review - Sprint 1	6	Development Team	Oct 24, 2023	Oct 25, 2023	Review sprint 1 deliverables	Included in 6
7	Development Sprint 2	6	Development Team	Oct 26, 2023	Nov 2, 2023	Develop additional features	\$20,000
7.1	Code Review - Sprint 2	7	Development Team	Nov 1, 2023	Nov 2, 2023	Review sprint 2 deliverables	Included in 7
8	Development Sprint 3	7	Development Team	Nov 3, 2023	Nov 10, 2023	Finalize development features	\$20,000
8.1	Code Review - Sprint 3	8	Development Team	Nov 9, 2023	Nov 10, 2023	Review sprint 3 deliverables	Included in 8
9	Quality Assurance - Sprint 1	6.1	QA Team	Oct 26, 2023	Oct 27, 2023	Testing sprint 1 features	\$5,000
9.1	Bug Fixes - Sprint 1	9	Development Team	Oct 27, 2023	Oct 28, 2023	Resolve issues found in sprint 1	\$5,000
10	Quality Assurance - Sprint 2	7.1	QA Team	Nov 3, 2023	Nov 4, 2023	Testing sprint 2 features	\$5,000
10.1	Bug Fixes - Sprint 2	10	Development Team	Nov 4, 2023	Nov 5, 2023	Resolve issues found in sprint 2	\$5,000

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11	Quality Assurance - Sprint 3	8.1	QA Team	Nov 11, 2023	Nov 12, 2023	Testing sprint 3 features	\$5,000
11.1	Bug Fixes - Sprint	11	Development Team	Nov 12, 2023	Nov 13, 2023	Resolve issues found in sprint 3	\$5,000
12	User Acceptance Testing	8.1	Key Stakeholders, QA Team	Nov 14, 2023	Nov 16, 2023	Final user testing before launch	\$6,000
12.1	Feedback Analysis	12	Business Analysts	Nov 16, 2023	Nov 17, 2023	Analyze user feedback for UAT	\$2,000
13	Marketing Campaign Strategy	None	Marketing Team	Oct 1, 2023	Oct 8, 2023	Develop marketing strategies	\$8,000
13.1	Marketing Material Creation	13	Marketing Team, Designers	Oct 9, 2023	Oct 15, 2023	Create marketing collateral	\$7,000
14	Social Media Campaign Launch	13.1	Social Media Team	Oct 16, 2023	Oct 23, 2023	Launch social media campaign	\$8,000
14.1	Social Media Monitoring	14	Social Media Team	Oct 24, 2023	Nov 30, 2023	Ongoing monitoring and adjustments	\$5,000
15	Stakeholder Update Meetings	None	Project Manager, Key Stakeholders	Oct 1, 2023	Nov 30, 2023	Regular update meetings	\$4,000
15.1	Update Documentation	15	Project Coordinator	Each Meeting	Each Meeting	Document meeting notes and actions	\$1,000
16	Deployment Preparation	11.1	DevOps Team	Nov 17, 2023	Nov 18, 2023	Prepare deployment environment	\$4,000
16.1	Production Environment Setup	16	IT, DevOps Team	Nov 17, 2023	Nov 18, 2023	Set up and configure production environment	Included in 16
17	App Store Submission	16.1	DevOps Team	Nov 19, 2023	Nov 20, 2023	Submit app to iOS and Android stores	\$3,000
17.1	App Store Optimization (ASO)	17	Marketing Team	Nov 21, 2023	Nov 22, 2023	Optimize app store listings	\$2,000
18	Training Development	15.1	Training Department	Oct 25, 2023	Nov 1, 2023	Develop training materials for new features	\$3,000
18.1	Training Sessions for Staff	18	Training Department	Nov 2, 2023	Nov 4, 2023	Conduct training for internal staff	\$3,000
19	Monitoring & Support Setup	17	IT Support, DevOps Team	Nov 23, 2023	Nov 24, 2023	Set up monitoring tools and support systems	\$2,500
19.1	Post-Deployment Monitoring	19	IT Support, DevOps Team	Nov 25, 2023	Nov 26, 2023	Monitor system post-deployment	\$2,500
20	Feedback Collection System	19.1	User Research Team	Nov 27, 2023	Nov 28, 2023	Set up system to collect user feedback	\$2,000

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00.4	Feedback Analysis	00	User Research Team, Data	Nov 29,	Nov 30,	Analyze feedback for future	ФО 000
20.1	and Reporting	20	Analysts	2023	2023	improvements	\$2,000
21	Official Launch Announcement	17	Marketing Team	Nov 21, 2023	Nov 21, 2023	Announce the official launch of the feature	\$2,000
21.1	Press Release Distribution	21	PR Team	Nov 21, 2023	Nov 21, 2023	Distribute press release to media outlets	\$1,500
22	Customer Support Training	18.1	Training Team	Nov 5, 2023	Nov 7, 2023	Train support staff on new features	\$2,500
22.1	Support Documentation Update	22	Technical Writers	Nov 8, 2023	Nov 10, 2023	Update support documentation for new features	\$2,000
23	Analytics and Reporting Setup	19.1	Data Analysts	Nov 27, 2023	Nov 28, 2023	Set up analytics tools for new feature	\$2,000
23.1	Initial Data Analysis	23	Data Analysts	Nov 29, 2023	Nov 30, 2023	Analyze initial usage data	\$2,000
24	Post-Launch Review Meeting	21.1, 22.1	Project Team	Nov 22, 2023	Nov 22, 2023	Review the launch process and initial feedback	\$1,000
24.1	Review Meeting Action Items	24	Project Coordinator	Nov 23, 2023	Nov 24, 2023	Assign actions based on review meeting	\$1,000
25	Continuous Improvement Planning	23.1	Project Manager, Dev Team	Nov 25, 2023	Nov 26, 2023	Plan for iterative improvements	\$1,500
25.1	Implementation of Improvement Plan	25	Dev Team	Nov 27, 2023	Nov 28, 2023	Implement the first set of improvements	\$2,000
26	Beta Testing Program Setup	25.1	QA Team, User Research Team	Nov 27, 2023		Prepare and initiate beta testing	\$3,000
26.1	Beta Tester Recruitment	26	User Research Team	Nov 27, 2023	Nov 28, 2023	Recruit users for beta testing	\$1,000
27	Beta Testing Feedback Collection	26	User Research Team	Nov 29, 2023	Nov 30, 2023	Collect feedback from beta test	\$1,500
27.1	Feedback Analysis for Beta Test	27	Data Analysts	Nov 29, 2023	Nov 30, 2023	Analyze feedback for product improvement	\$1,500
28	Risk Management Plan Update	24.1	Risk Manager	Nov 23, 2023	Nov 24, 2023	Update risk plan based on project progress	\$1,000
28.1	Risk Response Implementation	28	Project Team	Nov 25, 2023	Nov 26, 2023	Implement risk response strategies	\$1,000
29	Legal Compliance Check	None	Legal Team	Nov 11, 2023	Nov 12, 2023	Verify legal compliance of project deliverables	\$2,000
29.1	Legal Documentation	29	Legal Team	Nov 13, 2023	Nov 14, 2023	Update legal documents as	\$2,000

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	Update					necessary	
30	Performance and Load Testing	27.1	QA Team, IT Support	Nov 15, 2023	Nov 16, 2023	Test app performance under load	\$2,000
30.1	Optimization Based on Testing	30	Development Team	Nov 17, 2023	Nov 18, 2023	Optimize app based on performance testing results	\$2,000
31	Security Audit	30.1	Security Team	Nov 19, 2023	Nov 20, 2023	Conduct a security audit to ensure data protection	\$3,000
31.1	Resolve Security Audit Findings	31	Security Team, IT Support	Nov 21, 2023	Nov 22, 2023	Address and fix security issues found	\$2,000
32	Accessibility Testing	30.1	Accessibility Consultant	Nov 23, 2023	Nov 24, 2023	Ensure app meets accessibility standards	\$2,000
32.1	Implement Accessibility Feedback	32	UI/UX Team	Nov 25, 2023	Nov 26, 2023	Refine UI/UX based on accessibility testing	\$2,000
33	Project Documentation Update	28.1, 29.1	Technical Writers	Nov 27, 2023	Nov 28, 2023	Update project documentation with recent changes	\$1,500
33.1	Documentation Review	33	Project Manager, Technical Writers	Nov 29, 2023	Nov 30, 2023	Review and finalize project documentation	\$1,500
34	Final Project Review	31.1, 32.1	Executive Team	Dec 1, 2023	Dec 2, 2023	High-level project review before closing	\$2,000
34.1	Stakeholder Sign- off	34	Project Sponsor	Dec 3, 2023	Dec 3, 2023	Obtain formal project acceptance from stakeholders	\$1,000
35	Project Closure	33.1, 34.1	Project Manager	Dec 4, 2023	Dec 5, 2023	Formal closure and archiving of project documents	\$2,000
35.1	Post-Project Evaluation	35	Project Team, Key Stakeholders	Dec 6, 2023	Dec 7, 2023	Evaluate project performance and lessons learned	\$1,500
36	Customer Feedback Integration	35.1	Product Team	Dec 8, 2023	Dec 9, 2023	Integrate customer feedback into product backlog	\$2,000
36.1	Feedback Mechanism Enhancement	36	Development Team	Dec 10, 2023	Dec 11, 2023	Enhance feedback mechanisms within the app	\$1,500
37	Post-Launch Marketing Strategy	21.1	Marketing Team	Dec 12, 2023	Dec 13, 2023	Develop post- launch marketing initiatives	\$3,500
37.1	Post-Launch Marketing Material	37	Marketing Team,	Dec 14, 2023	Dec 15, 2023	Create marketing materials for post-	\$3,500

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	Creation		Designers			launch campaign	
38	Final User Training	22.1	Training Department	Dec 16, 2023	Dec 17, 2023	Conduct final user training sessions	\$2,500
38.1	User Training Material Update	38	Training Department	Dec 18, 2023	Dec 19, 2023	Update user training materials based on feedback	\$1,000
39	Maintenance Plan Development	36.1	Maintenance Team	Dec 20, 2023	Dec 21, 2023	Develop a maintenance plan for the app	\$2,000
39.1	Maintenance Schedule Setup	39	Maintenance Team	Dec 22, 2023	Dec 23, 2023	Set up a maintenance schedule	\$1,000
40	Operational Handover	39.1	Operations Team	Dec 24, 2023	Dec 25, 2023	Handover product to operations for ongoing management	\$1,500
40.1	Operations Team Training	40	Operations Team, Training Department	Dec 26, 2023	Dec 27, 2023	Train operations team on new product management	\$1,000
41	Long-Term Strategic Plan Development	39	Strategy Team	Dec 28, 2023	Dec 29, 2023	Develop a strategic plan for the product's future	\$1,500
41.1	Strategic Plan Review	41	Executive Team	Dec 30, 2023	Dec 31, 2023	Review and approve the long-term strategic plan	\$1,000
42	Advanced Feature Research	36	R&D Team	Dec 8, 2023	Dec 9, 2023	Research potential advanced features for future releases	\$3,000
42.1	Research Findings Report	42	R&D Team	Dec 10, 2023	Dec 11, 2023	Compile research findings into a report	\$2,000
43	Compliance Update Training	29.1	Compliance Team, Training Dept.	Dec 12, 2023	Dec 13, 2023	Train staff on updated compliance requirements	\$1,500
43.1	Compliance Materials Creation	43	Compliance Team	Dec 14, 2023	Dec 15, 2023	Create training materials for compliance	\$1,000
44	Technology Upgrade Plan	40.1	IT Department	Dec 16, 2023	Dec 17, 2023	Plan for technology upgrades to support the app	\$2,000
44.1	Tech Upgrade Cost Analysis	44	IT Department, Finance Team	Dec 18, 2023	Dec 19, 2023	Analyze costs for technology upgrades	\$1,000
45	Market Expansion Analysis	37.1	Marketing Team	Dec 20, 2023	Dec 21, 2023	Analyze new markets for potential expansion	\$2,500

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45.1	Market Expansion Report	45	Marketing Team, Strategy Team	Dec 22, 2023	Dec 23, 2023	Report on market expansion opportunities	\$1,500
46	Customer Service Readiness	38.1	Customer Service Team	Dec 24, 2023	Dec 25, 2023	Ensure customer service is ready for post-launch inquiries	\$1,500
46.1	Customer Service Script Development	46	Customer Service Team	Dec 26, 2023	Dec 27, 2023	Develop scripts for handling common questions and issues	\$1,000
47	Partner Outreach Program	45.1	Business Development Team	Dec 28, 2023	Dec 29, 2023	Establish outreach to potential partners and platforms	\$2,500
47.1	Partner Program Documentation	47	Business Development Team	Dec 30, 2023	Dec 31, 2023	Create documentation for partner program	\$1,500
48	Data Privacy Compliance Check	43.1	Legal Team, Data Privacy Officer	Dec 8, 2023	Dec 9, 2023	Review app for data privacy compliance per new regulations	\$2,000
48.1	Data Privacy Adjustments Implementation	48	Development Team, Data Privacy Officer	Dec 10, 2023	Dec 11, 2023	Implement required changes for data privacy	\$1,500
49	Scalability Assessment	44.1	IT Architect	Dec 12, 2023	Dec 13, 2023	Assess app scalability for future growth	\$2,000
49.1	Scalability Plan Development	49	IT Architect, Development Team	Dec 14, 2023	Dec 15, 2023	Develop plan to ensure app can scale with user base	\$1,500
50	Internationalization Feasibility Study	45.1	Strategy Team	Dec 16, 2023	Dec 17, 2023	Study feasibility of app internationalization	\$2,500
50.1	Internationalization Plan Creation	50	Strategy Team, Localization Team	Dec 18, 2023	Dec 19, 2023	Create a plan for app localization in new markets	\$1,500
51	Localization Strategy Implementation	50.1	Localization Team	Dec 20, 2023	Dec 21, 2023	Implement the localization plan for targeted markets	\$2,500
51.1	Localization Testing	51	QA Team, Localization Team	Dec 22, 2023	Dec 23, 2023	Test localized versions for accuracy	\$1,500
52	User Community Engagement Plan	46.1	Community Manager	Dec 24, 2023	Dec 25, 2023	Plan engagement with the app user community	\$1,500
52.1	Community Platform Set Up	52	IT Support, Community Manager	Dec 26, 2023	Dec 27, 2023	Set up online platforms for user community	\$1,000
53	App Feature Update Roadmap	42.1	Product Team	Dec 28, 2023	Dec 29, 2023	Develop a roadmap for future	\$2,000

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						app updates	
53.1	Roadmap Presentation to Stakeholders	53	Product Team, Stakeholders	Dec 30, 2023	Dec 31, 2023	Present update roadmap to stakeholders	\$1,000
54	Environmental Impact Study	None	Environmental Consultant	Dec 8, 2023	Dec 9, 2023	Study the environmental impact of the project	\$2,000
54.1	Impact Mitigation Strategy Development	54	Environmental Consultant, Strategy Team	Dec 10, 2023	Dec 11, 2023	Develop strategies to mitigate environmental impact	\$1,500
55	App Monetization Strategy	37.1	Finance Team, Strategy Team	Dec 12, 2023	Dec 13, 2023	Explore and define app monetization methods	\$2,000
55.1	Monetization Implementation Plan	55	Finance Team, Development Team	Dec 14, 2023	Dec 15, 2023	Plan the implementation of monetization features	\$1,500
56	Technical Support Plan	55.1	Support Manager	Dec 16, 2023	Dec 17, 2023	Develop a plan for ongoing technical support post-launch	\$2,000
56.1	Technical Support Staff Training	56	Training Department	Dec 18, 2023	Dec 19, 2023	Train technical support staff on new features and troubleshooting	\$1,500
57	Update FAQ Section Based on Feedback	51.1	Customer Service Team	Dec 20, 2023	Dec 21, 2023	Update the FAQ section with information based on user feedback	\$1,000
57.1	FAQ Review and Publication	57	Technical Writers	Dec 22, 2023	Dec 23, 2023	Review the updated FAQ for publication	\$500
58	Post-Launch Product Performance Monitoring	53.1	Data Analysts	Dec 24, 2023	Dec 25, 2023	Monitor product performance metrics post-launch	\$1,500
58.1	Performance Report Creation	58	Data Analysts	Dec 26, 2023	Dec 27, 2023	Create a report on product performance post-launch	\$1,000
59	Influencer Partnership Outreach	52.1	Marketing Team	Dec 28, 2023	Dec 29, 2023	Reach out to influencers for partnership opportunities	\$2,500
59.1	Influencer Campaign Coordination	59	Marketing Team	Dec 30, 2023	Dec 31, 2023	Coordinate marketing campaigns with influencers	\$2,000
60	New Feature Brainstorming Session	53	Product Team	Dec 8, 2023	Dec 9, 2023	Conduct a brainstorming session for	\$1,500

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						potential new features	
	Feature Concept			Dec 10,	Dec 11,	Develop concepts for the most promising new	
60.1	Development	60	Product Team	2023	2023	features	\$1,000
61	Customer Experience Improvement Plan	57.1	UX Team	Dec 12, 2023	Dec 13, 2023	Plan for iterative improvements based on user feedback	\$2,000
61.1	Customer Experience Workshop	61	UX Team, Customer Service Team	Dec 14, 2023	Dec 15, 2023	Workshop to analyze feedback and ideate on experience enhancements	\$1,500
62	Future Tech Research	49.1	R&D Team	Dec 16, 2023	Dec 17, 2023	Research on future technologies for integration	\$2,500
62.1	Tech Research Report	62	R&D Team	Dec 18, 2023	Dec 19, 2023	Compile findings from tech research into a strategic report	\$1,500
63	Sustainability Reporting	54.1	Sustainability Officer	Dec 20, 2023	Dec 21, 2023	Report on the sustainability practices of the project	\$1,500
63.1	Sustainability Strategy Session	63	Executive Team, Sustainability Officer	Dec 22, 2023	Dec 23, 2023	Session to align sustainability goals with corporate strategy	\$1,000
64	Integration with Other Services	61.1	Development Team	Dec 24, 2023	Dec 25, 2023	Develop integrations with other car-related services and apps	\$3,000
64.1	Integration Testing	64	QA Team	Dec 26, 2023	Dec 27, 2023	Test integrations for reliability and security	\$2,000
65	Patent Application for New Features	60.1	Legal Team	Dec 28, 2023	Dec 29, 2023	File patents for innovative features developed	\$2,500
65.1	Patent Strategy Review	65	Legal Team, Executive Team	Dec 30, 2023	Dec 31, 2023	Review patent strategy to ensure alignment with business goals	\$1,500
66	Final Security Enhancements	64.1	Security Team	Dec 28, 2023	Dec 29, 2023	Implement final round of security enhancements	\$2,500
66.1	Security Patch Deployment	66	IT Support	Dec 30, 2023	Dec 31, 2023	Deploy security patches across platforms	\$1,000
67	Optimization of Cloud Resources	64	DevOps Team	Dec 16, 2023	Dec 17, 2023	Optimize cloud resources for	\$3,000

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						efficiency and scalability	
67.1	Cloud Resource Monitoring	67	DevOps Team	Dec 18, 2023	Dec 19, 2023	Monitor cloud resource usage and adjust as needed	\$1,500
68	Final Legal Compliance Review	65.1	Legal Team	Dec 20, 2023	Dec 21, 2023	Ensure all aspects of the app are legally compliant	\$2,000
68.1	Legal Documentation Finalization	68	Legal Team	Dec 22, 2023	Dec 23, 2023	Finalize all legal documents and compliance checklists	\$1,000
69	Internal App Release Communication	66.1	Internal Communications Team	Dec 24, 2023	Dec 25, 2023	Communicate app release internally for awareness	\$1,500
69.1	Internal Newsletter Article	69	Internal Communications Team	Dec 26, 2023	Dec 27, 2023	Create a newsletter article on the app release for internal distribution	\$500
70	Customer Journey Mapping for New Features	61.1	Marketing Team, UX Team	Dec 28, 2023	Dec 29, 2023	Map out the customer journey for new features	\$2,500
70.1	Customer Journey Testing	70	UX Team, QA Team	Dec 30, 2023	Dec 31, 2023	Test the customer journey with a select user group	\$1,500
71	User Engagement Metrics Analysis	70.1	Data Analysts	Jan 1, 2024	Jan 2, 2024	Analyze user engagement metrics to gauge feature reception	\$1,500
71.1	Engagement Metrics Report	71	Data Analysts	Jan 3, 2024	Jan 4, 2024	Prepare a report detailing user engagement levels	\$1,000
72	Ongoing User Feedback Collection Setup	70	UX Team	Jan 5, 2024	Jan 6, 2024	Set up systems for ongoing user feedback collection	\$1,500
72.1	User Feedback Review Process Implementation	72	Product Team	Jan 7, 2024	Jan 8, 2024	Implement a process for regular review of user feedback	\$1,000
73	New Market Analysis	69.1	Market Research Team	Jan 9, 2024	Jan 10, 2024	Analyze new markets for potential expansion following launch	\$2,000
73.1	Market Expansion Strategy Document	73	Strategy Team	Jan 11, 2024	Jan 12, 2024	Document strategy for entering new markets	\$1,500
74	Post-Launch Staff Roundtable	72.1	HR	Jan 13, 2024	Jan 14, 2024	Conduct roundtable	\$1,000

						discussion with staff for post- launch feedback	
74.1	Roundtable Feedback Action Plan	74	HR, Project Manager	Jan 15, 2024	Jan 16, 2024	Develop an action plan based on staff feedback	\$500
75	Final Project Report	71.1, 73.1	Project Manager, Technical Writers	Jan 17, 2024	Jan 18, 2024	Compile the final project report summarizing outcomes	\$2,000
75.1	Project Report Presentation	75	Project Manager, Executive Team	Jan 19, 2024	Jan 20, 2024	Present the final project report to the executive team	\$1,000

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

Rejectionchanges, potentially with conditions for further analysis.scheduling' feature, conditional upon further UX design reviews.Implementation of ChangesApproved changes are incorporated into the project plan and assigned within the sprintAn approved efficiency improvement for the 'defrost feature' is scheduled for the next sprint cycle and assigned to the
Implementation of Approved changes are An approved efficiency Changes incorporated into the project plan improvement for the 'defrost and assigned within the sprint feature' is scheduled for the next backlog. sprint cycle and assigned to the
Changes incorporated into the project plan improvement for the 'defrost and assigned within the sprint feature' is scheduled for the next backlog. sprint cycle and assigned to the
and assigned within the sprint feature' is scheduled for the next sprint cycle and assigned to the
backlog. sprint cycle and assigned to the
relevant development team.
Communication All changes are communicated to Enhancements to the 'remote start'
stakeholders, with the Project functionality are communicated to
Manager updating project all team members, with updates
documentation. made to the project plan to reflect
these changes.
Change Log A Change Log is maintained to The Change Log includes records
Maintenance record the details of all changes, of each approved change, such as
their rationale, and their impacts. the decision to optimize the 'climat
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	Crucial for
		beneficiaries; provide	user testing
		iterative feedback	and capturing
			real-world
			feedback.
Development Team	Software Developers	Responsible for	They transform
		sprint-centric	the
		development and	requirements
		rigorous testing	into functional
			features.
Product Owners	Project Product Owners	Bridge the gap	Ensure features
		between user	are developed
		feedback and	in line with
		development	user needs and

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

5 COST/BUDGET MANAGEMENT

This section of the Project Management Plan lays out the framework and methodology for managing the costs of the Electric Car Mobile App Enhancement project. The plan is structured to ensure that the project is completed within the allocated budget of \$250,000.

Budget Allocation Overview:

- **Software Development and Testing:** \$150,000 has been allocated to cover all costs associated with the development, including personnel, tools, and testing resources.
- Marketing and Promotion: \$50,000 is dedicated to marketing activities, promotional materials, and campaigns to ensure market penetration and user adoption.
- Stakeholder Communication and Training: \$25,000 is allocated for effective communication with stakeholders and training activities for users and team members.
- Miscellaneous and Contingencies: A contingency fund of \$25,000 is set aside to
 address unforeseen costs or overruns, ensuring the project's ability to adapt to changes
 and unexpected requirements (Dobson, 2015).

Cost Management Procedures:

- **Estimation:** Cost estimations are based on a detailed analysis of project requirements, historical data, resource availability, and market rates.
- Budgeting: The budgeting process involves assigning the estimated costs to individual
 work packages within the Work Breakdown Structure (WBS), ensuring each task is
 funded appropriately.

• Monitoring and Controlling: Costs will be monitored and controlled through regular budget reviews, variance analysis, and proactive adjustments. Regular budget reviews will be conducted to compare expenditure against the budget, with the frequency and details of these reviews documented in the PMIS (Dobson et al., 2012).

Documentation and Storage:

- **Cost Documentation:** All cost-related documentation, including estimates, budget allocation, and financial tracking, will be stored in the PMIS.
- Access: The PMIS can be accessed by authorized project team members and stakeholders, ensuring transparency and collaboration in cost management (Read et al., 2017).

Change Control:

- Change Management Process: Any changes that impact the project cost will go through a formal change control process, requiring approval by the Change Control Board (CCB).
- **Documentation of Changes:** Approved changes will be documented in the PMIS and reflected in an updated cost baseline and budget forecast (Dumont et al., 1997).

Reporting:

- Regular Reporting: Cost performance and variance reports will be generated regularly,
 providing insights into the financial health of the project.
- **Final Reporting:** Upon project completion, a final cost report will be produced, summarizing the financial outcomes and comparing planned versus actual spending (Zdonek, 2020).

6 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 Nuţoaica, 2018).

7 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).

7.1 COMMUNICATION MATRIX

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

					email
QA Lead	Development	Testing	After	Email,	Responses
	1			,	•
(Testing	Team,	Summary	Testing	Document	and questions
Feedback)	Product	Report	Cycles	Share	via dedicated
	Owner				Slack channel
Project Manager	Entire	Ad Hoc	As Needed	Email, In-	Follow-up
(Change	Project	Meetings as		person/Video	meetings
Announcements)	Team,	needed		Call	scheduled for
	Stakeholders				significant
					changes

(Batista et al., 2023).

8 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:

- 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	_	
		_	
Signature:	SictucEkwo	Date:	10/25/2023
Print Name:	Dr. Sictuc Ekwo	<u> </u>	
Title:	Project Sponsor	_	
Role:	Approval Authority	_	
		_	

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:

- 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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