PUSL3190 Computing Individual Project

Project Initiative Document (PID)

BalangodaPULSE

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Degree Program: BSc (Hons.) Software Engineering

Chapter 01 – Introduction

"**BalangodaPULSE**" emerges as a transformative initiative, strategically designed to empower the residents of Balangoda, by addressing some challenges woven into the fabric of this vibrant community. Rooted in the backdrop of a community rich in cultural heritage and economic vitality, "**BalangodaPULSE**" unfolds against a canvas marked by information fragmentation, civic engagement gaps, and underutilized local resources.

The absence of a centralized platform has hindered the seamless flow of information, leaving residents without a comprehensive hub for accessing crucial local data. Inefficiencies in civic participation, unresolved local issues, and untapped volunteer potential further contribute to a fragmented community experience. Then "**BalangodaPULSE**" step forward as a digital bridge between residents, local authorities, and businesses, recognizing these challenges as opportunities for positively.

The scope extends beyond the conventional community engagement app, envisioning collaboration with various local authorities to create a holistic digital ecosystem. "**BalangodaPULSE**" aspires to be more than an app – it aims to be a catalyst for community ownership, collaboration, and proactive participation. Project Initiative Document (PID) serves as a comprehensive guide, detailing the methodology, project plan, and risk analysis crucial for the successful realization of "**BalangodaPULSE**".

As mentioned earlier, "**BalangodaPULSE**" navigates through the subsequent sections, a deeper understanding of the project's intricacies and its potential to shape the community's future unfolds. From localized content delivery to collaboration with local authorities, "**BalangodaPULSE**" strives to redefine community engagement and connectivity, fostering a stronger and more united Balangoda.

Chapter 02 – Business Case

2.1 Business Need

At the core of "**BalangodaPULSE**" lies the recognition of crucial challenges within the Balangoda community. The absence of a centralized platform has resulted in information fragmentation, hindering residents from accessing essential local data seamlessly. Ineffective civic participation, unresolved local issues, and the underutilization of local businesses further underscore the pressing need for a transformative solution. "**BalangodaPULSE**" emerges as a response to these challenges, aspiring to provide a unified digital platform that addresses the intricate needs of the community.

This initiative is not merely a technological endeavor; it's a strategic response to the evolving dynamics of community life. By identifying the specific issues and challenges faced by Balangoda residents, "**BalangodaPULSE**" aims to serve as a catalyst for positive change. It seeks to create an inclusive, user-friendly, and secure digital space that enhances the overall quality of life for the residents.

2.2 Business Objectives

The business objectives of "**BalangodaPULSE**" are meticulously crafted to align with the overarching goal of community transformation. These objectives extend beyond the realm of conventional project milestones; they are anchored in the principles of fostering collaboration, promoting community ownership, and enhancing the overall well-being of Balangoda.

"**BalangodaPULSE**" aims to establish a centralized hub for localized content delivery, ensuring that residents have seamless access to essential local information. Efficient communication channels will be developed, fostering engagement between residents, local authorities, and businesses. The project also seeks to facilitate collaboration by integrating official information and support from various local authorities. This not only addresses current challenges but lays the groundwork for a more resilient and connected community.

In essence, the business objectives encapsulate the version of "**BalangodaPULSE**" as a comprehensive solution, moving beyond the conventional boundaries of a community engagement app. It aspires to be a dynamic force, empowering Balangoda residents to actively participate in shaping the future of their community.

Chapter 03 – Project Objectives

"**BalangodaPULSE**" delineates specific, measurable, and time-bound goals, forming the backbone of the project's pursuit of community transformation as the project objectives. These objectives are carefully crafted to address the unique challenges faced by Balangoda residents and contribute to the overall enhancement of community engagement, information accessibility, and collaboration.

Centralized Information Hub – Create a user-friendly digital platform serving as a centralized hub for localized content delivery. Ensure residents have easy access to comprehensive local information, including news, events, services, and opportunities.

Efficient Civic Participation - Foster efficient civic participation by implementing user-friendly forums and mechanisms. Provide residents with channels to voice concerns, suggestions, and opinions regarding local affairs, enhancing their role in community decision-making.

Streamlined Communication Channels – Develop and implement efficient communication channels between local authorities, community leaders, and residents. Overcome disjointed communication barriers, facilitating transparent and timely information follow on matters of community importance.

Local Issue Resolution – Enable residents to report and address local issues promptly through the platform. Implement a streamlined process for reporting and resolving issues such as potholes, broken streetlights, and other community concerns.

Promotion of Local Businesses – Build a comprehensive directory of local businesses, services, and organizations. Provide detailed business information, contact details, and user reviews to promote and support the flourishing local economy.

Community Safety Enhancement – Implement a reliable emergency alert system to address community safety concerns during crises or natural disasters. Ensure residents have access to essential safety information, enhancing overall community resilience.

Transparent Governance System – Develop a more transparent and accountable governance system. Bridge the gap between local authorities and residents, fostering open dialogue and cooperation for the betterment of the community.

These objectives collectively embody the project's commitment to addressing the unique challenges faced by the Balangoda community and its dedication to fostering a connected, empowered, and resilient community environment.

Chapter 04 – Literature Review

The Literature Review for 'BalangodaPULSE' may be a journey through existing research and projects that pertain to community engagement, digital platforms, and technology interventions in the unique context of Balangoda. It aims to be a foundation for the "BalangodaPULSE" by drawing insights from previous knowledge and experience, while keeping a keen focus on the specific challenges and opportunities for Balangoda.

The literature surrounding the design of digital platforms supporting online communities (DPsOC) is foundational to understanding effective strategies for facilitating social interactions within virtual spaces. This review synthesizes key insights from a notable study conducted by **Paolo Spagnoletti[1], Andrea Resca[2], Gwanhoo Lee[3]** titled "**A design theory for digital platforms supporting online communities: a multiple case study**" (Journal of Information Technology, 2015). The research, aimed at formulating and validating a design theory, provides valuable propositions and insights applicable to the development of "BalangodaPULSE". Spagnoletti et al. (2015)

Paolo Spagnoletti[1] and his team's study delves into the core components of digital platform architecture, emphasizing the significance of the core, interface, and complements in supporting diverse social interaction structures within online communities. The identified interaction structures - information sharing, collaboration, and collective action- are pivotal considerations for "BalangodaPULSE," informing the design principles crucial for its success.

The research methods employed by **Paolo Spagnoletti[1] and his team** involving an in-depth analysis of a European digital platform for elderly care assistance, lends credibility to the derived design propositions. The case study approach aligns with the objective of understanding the nuanced requirements of specific online communities, a methodology that could prove insightful in tailoring "BalangodaPULSE" to the unique needs of the Balangoda community.

The study's broader applicability is demonstrated through the analysis of well-established digital platforms such as **Twitter**, **Wikipedia**, and **Liquidfeedback**. By extracting additional propositions and insights, the research extends its relevance beyond the initial case study, offering a more comprehensive understanding of design principles applicable to diverse online community contexts.

The propositions and insights derived from **Paolo Spagnoletti[1] and his team**'s study serve as a theoretical foundation for guiding the design of "BalangodaPULSE". As we delve into the implications of this research, it becomes evident that aligning the platform architecture with the specific social interaction needs of the Balangoda community is paramount. The study's emphasis on design theory and principles is particularly valuable in ensuring the platform's effectiveness in fostering information sharing, collaboration, and collective action.

In conclusion, **Paolo Spagnoletti[1] and his team**'s research significantly contributes to the discourse on designing digital platforms for online communities. Integrating the findings of this study into the literature review provides a robust framework for understanding the intricacies of social interactions within online communities, a framework that will be instrumental in shaping the design and functionality of "BalangodaPULSE".

Chapter 05 – Method of Approach

This chapter outlines the methodologies and approaches employed to conduct the project, providing a detailed insight into the systematic process that will be undertaken in developing and implementing "**BalangodaPULSE**" in partnership with **Balangoda Urban Council**. The method of approach serves as a roadmap, guiding the research methods, processes, and techniques that will be utilized to achieve the project's objectives.

The research design for "**BalangodaPULSE**" involves a collaborative exploration of the local context, community needs, and existing digital platforms in close consultation with the Balangoda Urban Council. A mixed-methods approach will be adopted, combining qualitative and quantitative research methods to gather a holistic understanding of the unique challenges and opportunities within Balangoda.

I. **Qualitative** – Such as, interviews, focus group discussions, and surveys, will be conducted in collaboration with the Balangoda Urban Council to capture the nuanced perspectives of Balangoda residents, community leaders and other stakeholders. The collaborative qualitative insights will contribute to the contextualization of the digital platform, ensuring alignment with the specific requirements and expectations of the community and the Urban Council.

II. **Quantitative** – The quantitative data will be collected through surveys and data analytics, working closely with the Balangoda Urban Council, to derive statistical insights into the patterns of community engagement, preferences for digital communication, and other relevant metrics. The collaborative quantitative data will complement the qualitative findings, providing a well-rounded understanding of the community dynamics.

In collaboration with the Balangoda Urban Council, a prototyping approach will be adopted for the development of "BalangodaPULSE". Initial prototypes will be co-created based on gathered requirements and collaborative user feedback. Iterative testing and refinement will be carried out with active involvement from the community and the Balangoda Urban Council, ensuring that the digital platform evolves in response to the collaborative community's changing needs.

"BalangodaPULSE" will adhere to strict ethical guidelines in collaboration with the Balangoda Urban Council. Informed consent will be obtained from participants, and data privacy and confidentiality will be maintained throughout the research process. Any potential risks to participants and the community will be carefully assessed and mitigated in collaboration with them.

This collaborative chapter outlines the structured approach that will be undertaken to bring "BalangodaPULSE" from conception to implementation, emphasizing the integral partnership with Balangoda Urban Council. Through collaborative qualitative and quantitative research, and by actively involving the community and the Urban Council in the prototyping process, the project aims to create a digital platform that authentically addresses the community's needs and fosters meaningful engagement.
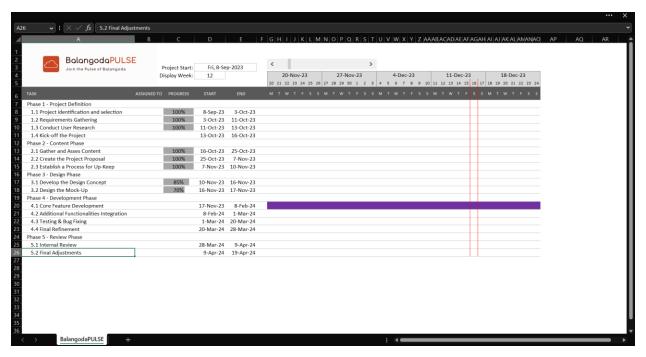
Chapter 06 – Initial Project Plan

Before delving into the intricacies of the project plan, a succinct recap of the scope and objectives of the 'BalangodaPULSE' is offered. The recap reaffirms the direct alignment between the project plan and the overarching goals of "BalangodaPULSE", ensuring a unified approach toward project milestones.

Duration (Days)

September 08, 2022 – April 21,2023

(148)

September 08 – October 16, 2023

1. **Project Definition**	**24**	
1.1 Project Identification and Selection	15	
1.2 Requirements Gathering	06	
1.3 Conduct User Research	02	
1.4 Kick-off the Project	01	

October 16 – November 10, 2023

2. **Content Phase**	**18**	
2.1 Gather and Assess Content	05	
2.2 Create the Project Proposal	09	
2.3 Establish a Process for Up-Keep	03	

November 10 – November 17, 2023

3. **Design Phase**	**06**	
3.1 Develop the Design Concept	04	
3.2 Design the Mock-Up	01	

November 17, 2023 – March 28, 2024

4. **Development Phase**	**87**	
4.1 Core Feature Development	54	
4.2 Additional Functionalities Integration	15	
4.3 Testing & Bug Fixing	12	
4.4 Final Refinement	06	

March 28 – April 19,2023

5. **Review Phase**	**13**	
5.1 Internal Review	07	March 28 – April 09
5.2 Final Adjustments	06	April 09 – April 19

The heart of the project plan is visualized through a Gantt chart, offering a chronological depiction of the project's lifecycle. The timeline spans the entire duration of the project, delineating key phases, deliverables, and deadlines. This visual aid enhances comprehension, providing a clear temporal structure for project stakehoders.

Chapter 07 – Risk Analysis

Risk Analysis delves into a comprehensive analysis of potential risks associated with the development and implementation of "BalangodaPULSE". The identification and mitigation of risks are crucial elements to ensure the successful execution of the project. This chapter aims to outline potential challenges, their impact, and proactive strategies to address and minimize these risks.

In collaboration with Balangoda Urban Council and community stakeholders, an exhaustive risk identification process will be undertaken. Potential risks will be categorized into various aspects such as technical, organizational, regulatory, and social. By engaging with diverse perspectives, the project team aims to create a comprehensive risk register that encapsulates the varied challenges that might emerge during the project lifecycle.

Each identified risk will be meticulously assessed in terms of its potential impact on project timelines, budget, and overall success. Collaborative discussions with the Balangoda Urban Council and community representatives will be held to determine the severity of each risk and prioritize them based on their potential consequences.

Proactive strategies and contingency plans will be developed in collaboration with all stakeholders to mitigate the identified risks. It'll involve a collective effort to brainstorm innovative solutions and preemptive measures to minimize the impact of potential challenges. The Balangoda Urban Council's expertise and insights will play a crucial role in formulating effective risk mitigating strategies.

A collaborative decision-making model will be employed to address risks collectively. The Balangoda Urban Council's input, along with the insights of community representatives, will be crucial in making informed decisions that align with the project's overarching goals. By fostering an environment of open communication, the project team aims to navigate challenges collaboratively.

The risk analysis emphasizes the proactive stance the project takes in identifying, assessing, and mitigating risks collaboratively with the Balangoda Urban Council and community stakeholders. By adopting a comprehensive risk analysis framework, "BalangodaPULSE" seeks to ensure a resilient and adoptive approach to challenges, thereby increasing the likelihood of a successful project outcome.

Chapter 08 – References

Spagnoletti, P., Resca, A., & Lee, G. (2015). A design theory for digital platforms supporting online communities: A multiple case study. *Journal of Information Technology*, *30*(4), 364–380. https://doi.org/10.1057/jit.2014.37