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| **Project Title:** SMARTUPP: CSA-Biñan’s Online Voting System |

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| **Program Title:** SMARTUPP | **Prepared By:**  Neil Andrews I. Dojeta | **Date:** April 24 , 2023 |

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| **Situation/Problem/Opportunity:**  CSA-Biñan had used different voting processes throughout the years. From interview done for the proposed project, the school normally use a face-to-face LAN network-based voting system. Using this system poses several problems:   1. Network congestion – Using a LAN network based-system, especially when it is not adequately designed for handling the volume of simultaneous voting traffic, this kind of problem may occur. It can result in delays, slow responsiveness, or even system failures when there are too many people voting. 2. System reliability: LAN network-based voting systems rely on the stability and reliability of the local network. Any disruptions, such as power outages, hardware failures, or network outages, can interrupt the voting process and may lead to loss of data and data corruption. 3. System accessibility: LAN network-based voting system requires the voters to be present on the location where it is installed so that they can cast their votes. This means that the people who are not present cannot cast their votes when they are not present at the voting location.   Before the school used this system, a traditional voting process was used. This involves voting through ballot papers that will be shaded by the students and then putting it in the ballot box. Using this kind of system have numerous problems:   1. Human error: Manual voting is prone to human errors such as miscounting, misinterpretation of voter’s choice, or mistakes made during the vote tallying process. These errors can potentially impact the accuracy of the election results. 2. Slow and time-consuming: Manual voting requires extensive manpower and time for tasks such as setting up polling stations, distributing and collecting paper ballots, and manual vote counting. 3. Vote Manipulation: By using ballot papers, there is a possibility that the votes in those ballots will be altered and misplaced that can lead to the loss or manipulation of votes.   Additionally, with the emergence of Covid-19, the school has no other option but to adapt to its effects. From face-to-face setup, they now switch to an online setup using Google Forms as a voting platform. However, there are also several problems that can arise when using Google Forms:   1. Lack of security: Google Forms is not specifically designed for secure voting purposes, and it may not provide robust security features necessary for a secure and confidential voting process. Without proper encryption, authentication, and protection against manipulation, the integrity and confidentiality of the votes may be compromised. 2. Limited control over access: Google Forms typically rely on shared links or email invitations to allow voters to access the form. This can lead to challenges in controlling access to eligible voters only, potentially allowing unauthorized individuals to participate or manipulate the voting process. 3. Lack of real-time monitoring: Google Forms does not provide real-time monitoring or reporting features specifically tailored for voting systems. This can make it difficult to track and analyze the voting process, monitor for irregularities, or provide immediate updates to stakeholders. |
| **Purpose Statement (Goals):**  This proposed project aims to develop an online voting system that was expected to work for the upcoming ACG election of the college department. The system will replace the former voting systems which uses paper, LAN network, and Google Forms. By using an online setup, the project aims to provide a digital platform to make the voting process more convenient, accessible, and inclusive for all students regardless of their location. |
| **Objectives/Deliverables(if known):**  This project proposal aims to develop an online voting system for CSA Biñan’s College Department.  Specifically, this project proposal aims to:   1. Consult with the school’s stakeholders, including students, faculty, and election organizers, to understand their needs, expectations, and concerns regarding the proposed project. 2. Design a user-friendly and intuitive interface, considering factors such as layout, typography, color contrast, and visual cues to enhance usability and user experience. 3. Develop an accurate recording and tallying of votes using different logical and computational operations to ensure the integrity of the voting process. 4. Provide transparency in the voting process, enabling students to verify the accuracy of their votes and ensuring the fairness of the overall process. 5. Make the system accessible to all eligible students regardless of their location and devices. It must have a support for multiple platforms and be compatible with different devices. 6. Develop comprehensive documentation and training materials to educate users about the online voting system, including instructions for students, election organizers, and administrators, facilitating a smooth transition from the previous voting methods to the new online system. 7. Provide ongoing technical support and maintenance for the online voting system, including regular updates, bug fixes, and system enhancements, to ensure its continued effectiveness and reliability throughout the ACG election and in the future. 8. Implement backup and recovery mechanisms to ensure data integrity and system resilience, allowing for quick restoration of the system in the event of any unforeseen failures or disruptions. 9. Simplify the voting process to reduce unnecessary steps or delays, and minimize system response times, ensuring a smooth and expedited experience for users. 10. Implement strong security measures to safeguard the integrity and confidentiality of the voting process, protecting against unauthorized access, tampering, or manipulation of votes and voter information. |
| **Methods/Approach:**  For the proposed project, the developing team will use an Agile SDLC Methodology. This model follows an iterative and incremental approach in developing a software which focuses on flexibility, adaptability, and collaboration. The following steps will be done in developing the online voting system:   1. Requirements Gathering   - Identifying stakeholders  - Conducting interviews  - Defining the system objectives  - Identifying the system requirements  - Analyzing the existing systems  - Identifying constraints and limitations  - Review and Finalize   1. System Design   - Defining system architecture  - Designing the user interface using UIzard  - Review and Finalize   1. Development   - Setting Bubble.io as the development environment  - Using Bubble.io’s integrated database management  - Developing the front-end interface   1. Testing   - Functional Testing  - Performance Testing  - Compatibility Testing  - User Testing  - Bug Tracking and Resolution  - Retesting, Validation and Final Review   1. Product deployment   - Using Bubble.io to host and run the online voting system  - System Configuration  - Using Bubble.io’s security measures  - Performance Optimization  - Backup and Disaster Recovery  - User Training   1. Review   - Review System Functionality  - Assess System Performance  - Gather User Feedback  - Analyze User Experience  - Review System Reports  - Identify Areas for Improvement  - Follow-Up and Monitoring  These steps will be repeated, adding new features and improvements with each deployment until the desired goals for the online voting system are achieved. |
| **Success Criteria:**  The success criteria for the proposed system are as follows:   1. The system must have a user-friendly interface that will help the voting experience of the students. This includes easy navigation and clear instructions. 2. The system must provide accurate election results based from the actual votes of the students. 3. Enable the students to verify their votes after they have submitted it. 4. Makes the system accessible to all students who are eligible to vote. 5. Comprehensive documentation and training for users. 6. Streamlined voting process for a smooth voting experience for the users. 7. Strong security measures to safeguard the integrity and confidentiality of the voting process. 8. Have proper backup and recovery mechanisms to ensure data integrity. |
| **Risks and Dependencies:**  By using Bubble.io as a development and hosting environment for the proposed system, the online voting system is under its services including security and back-end services. However, there are still some things to take note of:   1. The online voting system rely on internet connection. The system will be inaccessible without internet connection. 2. Bubble.io serves as the development, back-end, and hosting environment for the online voting system. Problems that may happen in this environment can affect the functionality and accessibility of the proposed project. 3. Despite being protected by Bubble.io’s services, the online voting system may still be vulnerable and be affected by other factors like human errors. |
| To ensure the successful implementation of the online voting system, the following consultations should be required:   1. Friar Administrators:   Consultation with the school administration will help identify the scope of the system, determine the types of elections or voting processes to be supported, and ensure alignment with the school's policies and procedures.   1. School’s Accounting Office:   Consultation with the accounting office will help in assessing the financial needs of the proposed system. This includes budgetary requirements, potential costs associated with system development, implementation, and cost of maintenance.   1. Faculty:   The faculty is important to gather their input and requirements for the online voting system as they may be involved in the voting process like electing the committees.   1. Student Body:   Engaging with student representatives can help in ensuring that the system meets the needs of the student population. encourage student’s participation, and provide a smooth voting experience.   1. Students:   The students can provide valuable insights regarding their preference as they will be the one to vote in the system. This will ensure inclusivity in the design and functionality of the online voting system. |
| **Resources:**  The following people will help in the development of the program:   1. Dr. Genevieve G. Estrañero – Serving as dean of CSA-Biñan’s College Department, she will provide the basic requirements for the proposed system. 2. Engr. Ariel M. Sumague – Serving as the project manager of the proposed system and the co-curricular head of ACG, he is responsible for the successful completion of the project by ensuring that all the necessary requirements have been gathered and that the programmer will be guided to follow these things. 3. ACG Officers – The current student body of the college department that will direct the process of the whole election that will be applied to the proposed system. 4. Neil Andrews I. Dojeta – Serving as the programmer of the system, he was tasked to create the proposed system following the requirements and expectations of the other stakeholders.   If approved, the proposed program will start on the first week of March and will end on the last week of May. The development process of the project will consist of three sprints reflecting the three parts of the program: Admin, Committee, and Voter. One month is the duration for each sprints following the Agile methodology.  Bubble.io is a free platform but in order to access the full functionality of the environment, the organization has to pay a minimum of 1800 php up to 22,340 php monthly. |