**Introduction**

**Purpose of the document**

This document provides a comprehensive technical guide for the Youth Program Management and Participation System. Its primary purpose is to detail the installation, configuration, and release procedures for the system, which was specifically developed for the Sangguniang Kabataan (SK) of Barangay Longos, Malabon City. The main objective of this documentation and the deployment it describes is to ensure a successful and smooth transition from the traditional, manual processes currently in place to a fully operational and computerized system. This guide is intended for system administrators, the project team, and the SK officials who will manage and maintain the software.

**Overview of the software system**

The software system is an integrated, desktop-based Youth Program Management and Participation System. It has been developed specifically for Barangay Longos, Malabon City, to support its Sangguniang Kabataan (SK) in managing youth programs more efficiently. The system was created to replace the current manual handling of youth programs and records , which relies heavily on handwritten records and verbal coordination. These manual processes often lead to delays, miscommunication, and significant difficulty in tracking participation and program outcomes. This new digital platform aims to promote efficiency, accuracy, and active youth involvement in community projects.

The main deliverable of the project is this desktop-based system, which was developed using Visual Studio and Visual Basic 2010. By introducing this digital system, the project aims to replace the inefficient manual methods with a more organized, centralized, and automated platform. The system includes several key modules designed to meet the SK's needs, such as modules for planning program schedules, monitoring attendance, collecting feedback from participants, and generating reports. To ensure data security and proper access control, the system also features a login feature complete with user role management, which ensures that only authorized users can access and modify sensitive data.

**Scope of the technical documentation**

This documentation covers all technical aspects of the system, including its architecture, installation, configuration, database structure, user functions, testing, and maintenance procedures. The system's functional scope is defined by its inclusions, which contain all the essential features needed to run youth programs effectively. These features are based on CRUD operations, giving users the ability to create, read, update, and delete records related to both events and participants. The system also includes practical tools such as search and filter functions to help users find specific information quickly. For reporting, the system can generate reports in both PDF and Word formats, making it easy to print or edit them as needed. All data for the system is stored locally, using either MS Access or SQL Server, depending on the setup available in the barangay. The system is designed to be installed on Windows desktop computers and used within the barangay office, allowing SK officials to manage all activities from one central place.

It is also important to note the system's constraints, which define what is outside its scope. The system is designed only for desktop use. Consequently, it will not be available as a mobile app and cannot be accessed through a web browser. This design means users must be physically present at the barangay office to use the system. Furthermore, the system does not include cloud storage functionality and will not send any automated notifications, such as emails or text messages. Finally, the system will not be connected to any third-party services, such as payment gateways or analytics tools. These constraints were deliberately chosen to keep the system simple, cost-effective, and precisely focused on the immediate needs of the barangay.

**System Overview**

**System architecture**

The system is built as a desktop-based application, specifically designed to be compatible with the Windows OS environment. The development was carried out using Visual Studio and Visual Basic 2010. The architecture is entirely local, meaning it runs within the Sangguniang Kabataan Office network in Barangay Longos. It does not utilize any cloud hosting , and as such, it is not accessible via a web browser. All data and operations are handled on-site. The database backend is also locally hosted, with the flexibility to use either MS Access or SQL Server , depending on the resources and setup available at the barangay office.

**High-level components** The system is organized into several key functional modules to support the SK's workflow. These components include:

* + **Program Planning and Scheduling**: A module for SK officials to plan and organize program schedules.
  + **Program Services Management**: Features to manage records related to program services.
  + **Officials Management**: A component for managing information about SK officials.
  + **Location Management**: Tools for managing information related to program locations.
  + **Barangay Background Module**: A section containing background information on the barangay.
  + **Participation and Attendance Tracking**: A module dedicated to monitoring attendance for various events.
  + **Feedback Collection**: A feature that allows for the collection of feedback from participants.
  + **Report Generation**: A function to generate reports in both PDF and Word formats.
  + **User Login and Role Management**: A security feature to ensure only authorized users can access and modify data.

**Deployment architecture**

The deployment architecture is a local deployment model. The system is not hosted on the cloud; instead, it runs entirely within the SK Office network. The hardware environment consists of the desktop computers already in use at the Barangay Longos SK Office, which run a Windows OS. The system is installed and operated on these local computers, connecting to the local database to manage all youth program data.

**Installation Guide**

**System requirements**

To ensure a successful installation, the target environment must meet specific hardware and software requirements.

* **Hardware:** Desktop computers. The project assumes the barangay has access to desktop computers that are compatible with the system's software.
* **Software:** The computers must be running a Windows OS. The system also requires Visual Studio and must be compatible with Visual Basic 2010.
* **Dependencies:** The system requires local storage for information and a functioning local network to ensure the database connection works. A local database, either MS Access or SQL Server, must be available.

**Step-by-step instructions**

The installation process follows the procedures outlined in the deployment plan. The pre-deployment phase must be completed before proceeding.

* **Pre-Deployment:** Begin by backing up all existing SK program data to ensure its safety before the new installation starts. Configure all necessary programming and database tools, and check their compatibility with the operating system. Set up the local network and verify that the database connection works correctly.
* **Deployment Execution:** Send or transfer all system files to the designated SK Office computers.
* **Database and System Setup:** Set up the database (MS Access or SQL Server) on the local server or designated machine.
* **Configuration:** Configure all necessary system paths and create the initial user credentials.
* **Initial Testing:** Perform initial system tests immediately after setup to confirm that everything is installed and set up correctly.

**Configuration settings**

Initial configuration is a critical part of the installation process. This involves configuring the programming and database tools to work with the host operating system. The most important settings to configure are the database connection, the system paths for file access, and the initial set of user credentials for SK officials.

**Configuration Guide**

**Detailed instructions for configuring the software**

Beyond the initial installation, configuration involves ensuring all system components are correctly set up. This includes configuring the programming and database tools and checking their compatibility with the Windows operating system. A key step is to set up the local network and confirm that the database connection is stable and functional. After the system files are in place, the administrator must set up the database, define all system paths, and create the necessary user credentials for the SK staff who will be using the system.

* **Configuration file formats and parameters** (The provided source documents do not contain specific information regarding configuration file formats or their parameters.)
* **Best practices for customization** (The provided source documents do not detail any best practices for customization.)

**Database Documentation**

* **Entity-relationship diagram (ERD)** (The provided source documents do not include an Entity-Relationship Diagram (ERD) or any depiction of the database schema.)
* **Description of database tables, fields, and relationships** The database is designed to be stored locally, using either MS Access or SQL Server technology. It serves as the central repository for all information managed by the system. This includes all records related to events and participants, which users can create, read, update, and delete. The database stores data for the system's core modules, including program schedules, attendance logs, participant feedback, and user account information for login and role management.
* **Data migration and backup procedures** Data migration from the old manual system is not automated; it is assumed that all data will be entered manually into the new system by authorized users. Before this process begins, a critical pre-deployment step is to back up all existing (manual) SK program data to ensure its safety. For ongoing data protection, the project assumes that the barangay has a standard procedure for backing up its data regularly, such as using external drives or local servers, to prevent data loss. As part of risk management, regular cloud backups and version control were planned to protect system files. The contingency plan for database connection failure or inaccessibility involves performing connectivity checks before deployment and maintaining ready backup databases and local backup copies.

**User Manual**

* **Instructions for using the software** Instructions for use are primarily delivered through a one-day training session provided for SK officials and staff members. This session is designed to help them get familiar with the system interface, the data entry process, and the report generation feature. The training includes both demonstrations and guided practice to ensure users are comfortable with the new software. In addition to the hands-on training, user manuals are distributed to staff for their reference. The project assumes that all SK officials and staff have basic computer skills and are open to learning how to use the system properly.
* **User interface descriptions and navigation guidelines** The system's user interface was a key focus during the design phase. The team created wireframes and flow diagrams to visualize how users would interact with the system. The primary goal was to create a simple, intuitive interface that SK officials could easily navigate. A clean, mobile-friendly interface was also designed to help ensure user adoption, though the final system is desktop-only. Navigation is structured around the system's core modules, allowing users to access features for program planning, attendance tracking, and reporting.
* **Common tasks and workflows** Users can perform a variety of common tasks essential for managing youth programs. The system is built on CRUD operations, allowing authorized users to create, read, update, and delete records for events and participants. Common workflows include:
  + **Planning programs:** Adding and updating program records and schedules.
  + **Managing participation:** Tracking attendance for events.
  + **Gathering feedback:** Collecting and reviewing feedback from participants.
  + **Finding information:** Using the built-in search and filter tools to locate specific records quickly.
  + **Reporting:** Generating reports in PDF and Word formats for printing or digital filing.
  + **Data Entry:** Manually entering all data into the system, as it is used only within the barangay office.

**Troubleshooting Guide**

* **Common issues and error messages** The project's risk assessment identified several potential issues that users or administrators might encounter.
  + **System inaccessibility:** The system may become inaccessible, potentially due to maintenance or unexpected errors.
  + **Database connection failure:** The system may lose its connection to the local database.
  + **User resistance or unfamiliarity:** Users may have difficulty adopting the new system, which is considered a low-level risk.
  + **Data loss:** There is a risk of data loss, which was addressed during planning.
  + **Bugs:** Unforeseen bugs may cause system instability.
* **Troubleshooting steps and resolutions** Mitigation strategies and resolutions have been planned for these common issues.
  + **For System Inaccessibility:** All system maintenance should be scheduled during off-hours to minimize disruption. Administrators must also ensure that local backup copies are ready to be restored if needed.
  + **For Database Connection Failure:** Perform regular connectivity checks, especially before deployment. Always maintain backup databases that can be swapped in if the primary connection fails.
  + **For User Resistance:** This is managed by providing comprehensive training sessions, distributing easy-to-understand manuals, and offering on-call assistance to support users as they learn the new system. Peer-led onboarding sessions can also be organized.
  + **For Data Loss:** This is mitigated by setting up regular cloud backups and using version control to protect all system files and youth-generated content.
  + **For Bugs:** Any issues that arise post-deployment will be fixed by the project team. Structured unit testing and system testing are used to catch and fix bugs early.
* **Contact information for technical support** For any issues that arise, the project team will offer support to the SK officials and staff. This support will be provided through both on-site help at the barangay office and via online communication channels.

**Code Documentation**

* **Code structure and organization** The system's development followed the Agile methodology. Development was carried out in sprints, with each sprint focusing on building one module at a time, starting with core functionalities. This modular structure includes components like "Program Planning" and "Participation Tracking". The team held regular stand-up meetings and sprint reviews to adjust priorities and integrate completed features, ensuring all modules worked together properly. The Lead Developer was responsible for designing the system's overall structure and ensuring the technical foundation was solid.
* **Coding standards and conventions** The system is a desktop-based application. The primary development tools and languages used were Visual Studio and Visual Basic 2010. The source documents also mention "php language" as well as "HTML, CSS, JavaScript And PHP" in the context of development technologies. The Programmer was responsible for writing the actual code based on approved features and tasks, turning the system design into a working application. The Lead Developer reviewed and approved the code to ensure it followed the planned design and worked properly.

**Testing Documentation**

* **Test plan outlining testing objectives and strategies** The testing strategy was continuous and integrated into the Agile development process. After each sprint, the team conducted testing to check individual features and ensure modules worked together. This allowed the team to catch bugs early and fix them before they became serious problems. A key part of the plan involved User Acceptance Testing (UAT), where SK officials tried out the system to provide feedback on usability and performance. After the system was fully deployed, further functional and performance tests were conducted to check for system stability. The final deployment was only confirmed after all system testing and UAT were finished. The Quality Designer & Tester was responsible for designing the testing process.
* **Test cases covering functional and non-functional requirements** The testing process covered several areas to ensure quality:
  + **Unit Testing:** Conducted after each sprint to check individual features.
  + **Integration Testing:** Performed to ensure that different modules worked together properly.
  + **User Acceptance Testing (UAT):** SK officials participated in UAT to test usability and performance from an end-user perspective.
  + **Validation and Security Testing:** The team tested for data validation, input errors, and security to ensure the system was reliable and safe.
  + **System Testing:** A broader testing phase to check the system for any errors or bugs.
  + **Usability Checks:** Performed to ensure the system was easy to use.
* **Test results and defect reports** (The provided source documents do not contain any specific test results or defect reports.)

**Maintenance Guide**

* **Procedures for maintaining and updating the software** Regular maintenance is required to ensure system stability. As noted in the troubleshooting guide, any system maintenance that could cause downtime (e.g., "System inaccessibility") should be scheduled during off-hours to minimize the impact on SK operations. Updates and enhancements are handled by the project team.
* **Version control and release management practices** Version control was used as a risk management strategy during development to protect all youth-generated content and system files from data loss. Once all modules were tested and approved, the system was prepared for release. The final version was installed on the barangay’s desktop computers, and documentation was provided to guide users.
* **Guidelines for handling bug fixes and enhancements** Following deployment, the project team is responsible for monitoring system feedback. Any issues or bugs that arise will be fixed by the team. The development process included structured testing to catch and fix bugs early. If new ideas or features are proposed that were not part of the original plan, the sponsor and team leader will discuss whether to include them in the current version or save them for future updates.

**Approval**

The deployment of the Youth Program Management and Participation System is to be confirmed after the successful completion of all system testing and User Acceptance Testing (UAT). The SK officials will provide the final sign-off and approval once they have verified that the system is working as expected and without any major problems.

Key stakeholders for approval include:

* **Shaicylle T. Ogatia** (Project Leader / System Analyst)
* **Annel Josh Bognalbal** (Programmer)
* **Irish Evangelista** (SK. Chairperson)

**Appendix**

Any additional supporting documentation, diagrams, or reference materials are included here.

* Youth Program Management and Participation System. (SK Barangay Longos, Aug 2025). <https://sklongos.gov.ph/youth-program-system>
* Sangguniang Kabataan Reform Act of 2015 (Republic Act No. 10742). (Official Gazette, Philippines). <https://www.officialgazette.gov.ph/2016/01/15/republic-act-no-10742/>
* DILG SK Handbook. (Department of the Interior and Local Government, n.d.). <https://www.dilg.gov.ph/PDF_File/reports_resources/dilg-reports-resources-2021147_5f3f3e7f3f.pdf>
* Malabon City Youth Development Office Reports. (2023). <https://malabon.gov.ph/youth-development-office> <https://zenodo.org/records/11142943>