Budget Plan Report

Objective: To draft report on estimation and allocation of budget required for software development and management and identifying the percent of budget required by each category or phase.

Abstract:

Localized Volunteer Coordination System is a platform that helps in using the volunteers in disaster recovery situations with quick group formation coordination and providing the optimal resources management to overcome the surplus and scarcity issues with respect to the volunteers and the supplies needed to help the disaster victims. All this can be achieved through a web and mobile supplication that can be used which is filled with all the above functionalities in it.

Some of the key functionalities of the project management of localized disaster volunteer coordination system are:

- **Web and Mobile Application:** Web and mobile application are two platforms where the software system can be accessed which will be having user friendly interface design that ease the process of navigation through the product with less effort by the users.

- **User Profile management:** User profile management is about the users creating the profiles and showcasing their volunteering ability and skills and showing their eagerness and motivation towards volunteering and actively look for volunteer work based on their skills.
- **Communication and network feature:** Developing the communication channel and the group formation feature which keeps the coordination between the volunteers during the disaster rescue process.

- **Multi language support:** Multi language support expands the usage of platform by different users irrespective of language barrier and which indeed makes volunteers coordinated without the issue of language difference.

- **AI and GIS integration:** AI and GIS assistance help in identifying the location of the disaster site and in identifying the right human resources and supplies needed to help the victims.

- **Analytical Dashboard:** Analytical Dashboard lets user know the volunteer experience and the amount of work done and other analytical results with respect to the investment on the disaster management and the safety of the city with respect to disaster history and rescue impact with respect to the volunteers.

- **Testing and deployment:** Test the software product under different testing methodologies to assure the right quality of the product developed in terms of design, code, and workflow.
- **User and stakeholders' acceptance:** The product developed should get the user and stakeholders' acceptance which depends on the product performing the functionalities as per the requirements and objectives documented.

- **Resource release and project closure:** Once the software platform is accepted, the final closing procedure must be followed where in the final version of the software must be decided and related paper works and documents to be created and get the official sign off for the project and release the resources utilized in terms of human resources and the technology services for building. Note that the third-party services that the platform rely on are continued.

- **Marketing and advertisement:** Advertising the platform for the potential users and the organization who are the targeted audience for using the platform in their daily operations.

Cost Categories:

Cost or budget is divided to each phase or categories of the software development lifecycle. Here the cost is divided based on Delphi technique and by studying the budget categorization done on previous projects with similar lifecycle and development. Assumption is the project development lasts for 7 months and not including the extensions or delays. Calculations for delays is done at the contingency budget.

Total Budget: $ 1,100,000

1. **Project Initiation: ~25% ($275,000)**
    - Project Planning
    - Stakeholders' identification and user requirements gathering
    - Documenting the requirements and creating project scope and objectives.
2. **Development: ~ 45% ($ 495,000)**
    - Web and mobile application.
    - Database design and APIs management
    - Communication and network functionality
    - Multi language support
    - AI assist and GIS integration
    - Analytical dashboard creation
3. **Testing: ~20% ($220,000)**
    - Testing and quality assurance.
    - User training and software acceptance.

4. **Marketing: ~10% ($110,000)**
    - Sales and marketing.
    - Advertising the platform for targeted users.

5. **Ongoing Maintenance: ~10% ($110,000)**
    - Technical support
    - Software maintenance

Resource Costing:

The resource cost is calculated assuming the project is undertaken by a Canadian firm and the salaries of individual role are with respect to the average salary of the role in Canada.

1.Human Resources:

- Project Manager – 1 to take care of the entire project.
  Average PM salary - $105,000 per year, for the project duration (7 months) **$ 61,250**.

- Business analyst – 1 to understand the user requirements and prepare the required documents.
  Average Business analyst salary - $ 77,000 per year, for the project duration (7 months) **$44,918**

- Full stack developer – 1 to develop the web application.
  Average Full stack developer salary - $ 98,000 per year, for the project duration (7 months) **$57,167**

- Mobile application developer – 1 to develop mobile applications compatible for various operating systems.
  Average Mobile application developer salary - $ 86,000 per year, for the project duration (7 months) **$50,166**

- Jr. developers – 2 to assist the senior developers.
  Average Jr. developer salary - $ 61,000 per person per year, for the project duration (7 months) **$35,584**
  Total: $ 71,168

- Data Engineer – 1 for handling data flow and storage.
  Average Data Engineer salary - $ 102,000 per year, for the project duration (7 months) **$59,500**

- Data scientist – 1 for data modeling and analysis.

Average Data scientist salary - $ 96,000 per year, for the project duration (7 months) **$56,000**

- Linguistic expert – 1 for developing multi language support.
  Average Linguist expert salary - $ 100,000 per year, for the project duration (7 months) **$58,334**

- Testing and quality assurance team – 2 for testing and improving the quality of the product.
  Average Test engineer analyst salary - $ 77,000 per person per year, for the project duration (7 months) **$44,918**
  Total: $89,836

- Technical support – 2 for technical support and maintenance for customer interaction and provide services to the users.
- Average Technical support analyst salary - $ 64,000 per person per year, for the project duration (7 months) **$37,334**
  Total: $74,668

  Total Human resources cost: $ 564,673 for project duration of seven months.

2. Technology cost:

- Servers: **$ 70,000**
- Other software licenses and hardware support: **$ 80,000**
  Total Technology cost: $ 150,000 for seven months. Note the servers and other licenses the software depends on are continued.

3. External Services:

- Consultant: $30,000
- Cloud services: $ 100,000
- APIs and GIS services: $ 30,000
- Marketing and ads services: $ 50,000
  Total External services: $ 210,000

  Final cost: $ 924,673 for the development of the software without any delays and risks.

Contingency Budget:

Contingency budget is the part of the budget that is kept handling the risk of delay in project development with respect to human resources, technology or services and potential obstacles during the software development process. This also includes changes made to the user

requirements, scope and change requirements based on iterative development. Such constraints are identified and based on the complexity of the project a value equivalent to 10% of the total budget is set as contingency budget. Thus, a value of **$100,000** is reserved for solving changes and risks if any occur during the development.

The contingency budget can further be divided amongst the human resources, technology, and External services.

- Human resources risk such as employee attrition, lack of desired skills. Also, if there is a trouble in getting the right solution for the requirements and results in delay. Technology issues that cannot be identified by the resources is yet another cause of risk. Thus, for this division around 50% of the contingency budget that is **$50,000** is spent.

- Technology risk such as compatibility issue among the technology stack, lack of required functionality from the technology used. Hardware compatibility and lack of proper technology documentation are some of the causes for technology risk. For this division, the contingency budget assigned around 20% of around **$20,000.**

- Changes requested and scope adjustment and other unforeseen requirements from the users and stakeholders or any other changes that alter the project management flow must be considered and solved to reduce the risk of delay. This holds around 30% of the contingency budget summed to **$30,000.**

Further, some of the key concepts such as budget tracking to identify the budget spent on the developmental and other process during the project management must be analyzed to reduce the risk of budget overflow that results in financial deficits. There should be a standard budget approval process that should be followed whenever the user requirement changes, and scope changes occurs when user alter their interest on the project which causes budget reconsideration. Hence, for such scenarios the budget re calculation should follow the standard procedure that is set prior the development process.