**SYSTEM ANALYSIS**

**CHAPTER 3**

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**3.1 Introduction to System Analysis**

* **System**: A system is an orderly group of interdependent components linked together according to a plan to achieve a specific objective. Its main characteristics are organization, interaction, interdependence, integration and a central objective.
* **Analysis:** Analysis is a detailed study of the various operations performed by a system and their relationships within and outside of the system. One aspect of analysis is defining the boundaries of the system and determining whether or not a candidate system should consider other related systems. During analysis data are collected on the available files decision points and transactions handled by the present system. This involves gathering information and using structured tools for analysis.
* **System Analysis:** System analysis and design are the application of the system approach to problem solving generally using computers. To reconstruct a system the analyst must consider its elements output and inputs, processors, controls, feedback and environment.

**3.2 Feasibility Study**

Feasibility is the determination of whether or not a project is worth doing. The process followed in making this determination is called feasibility Study. This type of study if a project can and should be taken. In the conduct of the feasibility study, the analyst will usually consider seven distinct, but inter-related types of feasibility.

**3.2.1 Technical Feasibility**

This is considered with specifying equipment and software that will successfully satisfy the user requirement the technical needs of the system may vary considerably but might include

* The facility to produce outputs in a given time.
* Response time under certain conditions.

**3.2.2 Economic Feasibility**

Economic analysis is the most frequently used technique for evaluating the effectiveness of a proposed system. More commonly known as cost / benefit analysis. The procedure is to determine the benefits and savings are expected form a proposed system and a compare them with costs. It benefits outweigh costs; a decision is taken to design and implement the system will have to be made if it is to have a chance of being approved. There is an ongoing effort that improves in accuracy at each phase of the system life cycle.

* + 1. **Operational Feasibility**

It is mainly related to human organization and political aspects. These points are considered are

* What changes will be brought with the system?
* What organizational structures are distributed?
* What new skills will be required?
* Do the existing system staff members have these skills?
* If not, can they be trained in the course of time?

**3.3 Functional Requirements**

* **User Roles and Login:** The system must support Admins, Creators, and Users with distinct responsibilities. Admins manage core functionality, Creators propose projects, and Users contribute funds.
* **Campaign Management:** The system should approve campaigns before listing, enable Creators to manage details, and allow Users to browse and contribute. It supports two-stage funding goals for campaign.
* **Funding and Transactions:** The system should ensure secure transactions on Ethereum, store user funds securely, and optionally include an admin-managed voting system for fund releases.
* **Content Management:** The system should provide a responsibility to creators provide project details, displayed clearly on campaign pages for user understanding and engagement.
* **Notification and Alert Management:** The system should include robust notification and alert mechanisms to promptly inform users about errors or mismatches in field details, ensuring data accuracy and system reliability.
* **User Interface:** The system must offer an intuitive, user-friendly interface for easy access and interpretation of displayed information, enhancing user experience and efficiency.
* **Transparency and Security:** The system ensures transparency by recording transactions on Ethereum's blockchain, using smart contracts for campaign logic automation, and implementing robust security measures for user data and funds protection.
* **Campaign Funding and Distribution:** The system provides an admin-managed voting system for fund release based on contributor voting. Contributors can vote "approve" or "reject" based on predefined criteria, ensuring transparent and fair fund distribution.

**3.4 Non-Functional Requirements**

* **Security:** The system must ensure a high level of security for user data, funds, and smart contracts, utilizing strong encryption methods and access control mechanisms compliant with blockchain security standards.
* **Reliability:** The system must be highly reliable and available at all times, with redundancy and fault-tolerant mechanisms to ensure continuous operation.
* **Scalability:** The system must scale up or down to accommodate a growing user base and transaction volume, handling real-time transactions efficiently.
* **Performance:** The system must meet performance requirements, including fast response times, processing speeds, and throughput, without slowing down during peak loads.
* **Interoperability:** The system should integrate seamlessly with blockchain technologies like web3, Geth Go and MetaMask, as well as with other relevant technologies and APIs, following industry standards
* **Maintainability:** The system must be easy to maintain and update, with minimal disruption to operations, through proper documentation and debugging tools to ensure smooth operation and minimal downtime.

**3.5 System Analysis Summary**

This chapter introduces the system analysis process. It gives brief idea whether this project should be done or not based on various feasibility study. It gives the summary of various feasibility studies that were carried out and shows the advantages of doing this project. At the same time, it also gives the overview of various functional and non- functional requirements of the system.