Project Design Phase-II

Solution Requirements (Functional & Non-functional)

Date	**13 May 2023**
Team ID	**NM2023TMID01199**
Project Title	**Smart Billing system for water suppliers**

Functional Requirements:

It defines what a product must do, what its feature and functions are. Following are the functional requirements of the proposed solution.

FR. No	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Detects Motor (ON) time	The detection which is based on, how many hours/ minutes a motor is in ON condition and depends on this time, the bill will generated for each customers.
FR-2	Customer billing	The system should generate accurate and timely bills for customers based on their water usage data.
FR-3	Usage monitoring	The system should monitor and record water usage data, including meter readings and historical usage data, to accurately bill customers and identify trends or anomalies in water usage.
FR-4	Payment processing	The system should process payments from customers, including online payments and automatic payment processing.

FR-5	Customer service	The system should provide customers with access to their billing information and usage data, as well as the ability to report issues and contact customer service.
FR-6	Data analytics	The system should provide water suppliers with data analytics and reporting tools to help them analyse usage patterns, identify trends, and optimize their water supply operations.
FR-6	Integration with other systems	The system should integrate with other water supply systems, such as customer relationship management (CRM) and meter reading systems, to streamline operations and improve efficiency.
FR-7	Compliance with regulations	The system should comply with local regulations and standards related to water supply and billing.

Overall, the functional requirements of a smart billing system for water suppliers will depend on the specific needs and goals of the supplier, as well as the preferences and expectations of their customers. A well-designed and implemented system can improve billing accuracy, streamline operations, and provide valuable insights into water usage patterns and trends.

Non-functional Requirements:

It is not related to the system functionality, rather than define how the system should perform. Here, we'll briefly describe the most typical non-functional requirements. Following are the non-functional requirements of the proposed solution.

NFR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The usability of a smart billing system for water suppliers will depend on the specific features and functionality of the system, as well as the needs and preferences of the supplier and their customers. However, in general, a well-designed and implemented smart billing system can bring significant benefits to both the supplier and the end-users. Here we design a model with S**imple Handed Criteria (SHC)**. So that everyone can use it efficiently.
NFR-2	**Security**	Security is an important consideration for any smart billing system, including those used by water suppliers. Such systems typically collect and store sensitive data, such as customer billing information and usage data, which can be a target for cyberattacks and data breaches. To ensure the security of a smart billing system for water suppliers, several measures can be taken: • Data encryption • Access controls • Regular updates and patches • Monitoring and logging • Employee training In addition, it is important for water suppliers to work with trusted vendors who have a strong track record in developing and maintaining secure smart billing systems.
NFR-3	**Reliability**	Reliability is a critical aspect of any smart billing system, as accuracy and timely delivery of bills are essential to the smooth functioning of water supply operations. A reliable smart billing system ensures that customers are accurately

		billed for their water usage, and that suppliers can efficiently manage their billing processes. To ensure the reliability of a smart billing system for water suppliers, several measures can be taken: • Robust infrastructure • Regular maintenance and upgrades • Data validation and accuracy checks • Customer support
NFR-4	**Performance**	Performance is an important consideration for any smart billing system, as it affects the speed and accuracy of billing processes, data collection and management, and customer service. A high-performing smart billing system can help water suppliers to optimize their operations, improve customer satisfaction, and enhance revenue collection. To ensure optimal performance, the following are the steps taken by a system are: • Hardware and software optimization • Network optimization • Data management • Automation • Monitoring and maintenance By taking these measures, water suppliers can ensure that their smart billing system delivers fast and reliable performance, helping them to optimize their operations and provide high-quality customer service.
NFR-5	**Availability**	The availability of a system refers to its ability to be operational and accessible to users when needed. To ensure the availability of a smart billing system for water suppliers, several measures can be taken: • Redundancy and failover • Monitoring and alerts

		• Disaster recovery plans • Regular maintenance and updates
NFR-6	**Scalability**	Scalability is an important consideration for any smart billing system, including those used by water suppliers. As the number of customers or water usage data grows, a scalable system can accommodate the increased demand without sacrificing performance or accuracy. To ensure the scalability of a smart billing system for water suppliers, several measures can be taken: • Design for scalability • Flexible architecture • Cloud-based infrastructure **(IBM CLOUD IOT PLATFORM)** • Distributed computing • Load testing By taking these measures, water suppliers can ensure that their smart billing system can scale up or down as needed to accommodate changing demand and growth.

These are all the solution requirements for my project. Hence, by meeting these solution requirements, a smart billing system for water suppliers can improve accuracy, efficiency, and customer satisfaction, while also helping the water supplier optimize their operations and improve their bottom line.