**INTERNET OF THINGS-GROUP 5**

**TEAM MEMBER**

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**Project Title: SMART WATER SYSTEM**

**Phase 1: project definition and design thinking**

**Project definition:**

IoT-based smart water system is a process of planning, allocation and monitoring water resources and maintaining related equipment like pipes and pumps through IoT hardware and software.

IoT-enabled smart water system use sensors, controllers, meters, and other devices connected to mobile, web apps, and data processing and analysis tools. All this creates a platform for efficient water supply management, freshwater quality checking, pollution detection, and more. IoT devices and sensors attached to the pipes and pumps collect real-time data on water temperature, level, flow, etc. Then, they transmit this data via the Internet to a cloud server for further processing and analysis. The insights obtained contribute to proper water resources management and equipment maintenance

**Problem statement**

Wireless communication developments are creating new sensor capabilities. The current developments in the field of sensor networks are critical for environmental applications. Internet of Things (IoT) allows connections among various devices with the ability to exchange and gather data. IoT also extends its capability to environmental issues in addition to automation industry by using industry 4.0. As water is one of the basic needs of human survival, it is required to incorporate some mechanism to monitor water quality time to time. Around 40% of deaths are caused due to contaminated water in the world. Hence, there is a necessity to ensure supply of purified drinking water for the people both in cities and villages. Water Quality Monitoring (WQM) is a cost-effective and efficient system designed to monitor drinking water quality which makes use of Internet of Things (IoT) technology. In this paper, the proposed system consists of several sensors to measure various parameters such as pH value, the turbidity in the water, level of water in the tank, temperature and humidity of the surrounding atmosphere. And also, the Microcontroller Unit (MCU) interfaced with these sensors and further processing is performed at Personal Computer (PC). The obtained data is sent to the cloud by using IoT based ThinkSpeak application to monitor the quality of the water.

**Design Thinking**

1. **PROJECT OBJECTIVES :** Smart water system is to increase the resilience and efficiency of the O&M of the entire system.
2. **IOT SENSOR DESIGN:** IoT based smart water system sensor is used to measure various parameters of water quality, such as pH, temperature, dissolved, oxygen, and the presence of chemical and microorganisms.
3. **REALTIME TRANSMIT INFORMATION TRANSFORM:** Enables access to information from anywhere at any time on any device.
4. **INTEGRATION APPROACH :** Monitoring indoor environment in building can be useful tool in improving infrastructure efficiency.