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**SMART WATER: REAL-TIME WATER QUALITY
SURVEILLANCE SYSTEM**

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ABSTRACT

The lack of real-time monitoring of water quality in diverse applications is addressed by the IoT water quality monitoring system. To deliver precise and timely data, the system uses sensors to measure turbidity, pH, and temperature. When water quality deviates from permitted levels, an Arduino Uno microcontroller, which processes the acquired data, activates alarms and messages, controls system functionality. An ESP8266 Wi-Fi module is incorporated into the system for cloud-based monitoring, allowing for remote access to real-time water quality data. The project entails designing and assembling hardware as well as writing, installing, and testing software. Users can efficiently monitor and guarantee the safety of water for drinking, swimming pools, and industrial processes by putting this system into place. Real-time water quality monitoring with the IoT water quality monitoring system is affordable, effective, and contributes to the preservation of clean and safe water supplies.

Keywords — water, quality, pH, temperature, turbidity, Arduino

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CHAPTER 1

INTRODUCTION

1.1 Project Overview

Atmospheric air serves as an essential water supply for organisms. It is crucial not just for humans but also for other organisms, including animals and plants, as it allows them to maintain their existence. Water is essential for humans to carry out vital bodily tasks such as maintaining physiological processes, controlling body temperature, digesting food, delivering nutrients, and removing waste. Consuming water is essential for maintaining optimal health and general well-being.

Just like humans, animals rely on water for essential physiological processes such as maintaining hydration, controlling body temperature, facilitating digestion, transporting nutrients, excreting waste, and facilitating reproduction. Water is essential for preserving their entire health and well-being. In addition, it is crucial for plants to have access to water in order to acquire essential nutrients and maintain their structural integrity.

Unfortunately, the significance of environmental conservation has been overlooked in the relentless pursuit of technological advancements. Human activities have resulted in the contamination of water, leading to detrimental effects on diverse ecosystems. Therefore, early identification of water pollution may be accomplished with the help of this initiative. Recognizing polluted areas promptly enables swift treatment, converting them into sources of clean water.

1.2 Background

A project called Smart Water: Real-Time Water Quality Surveillance aims to quickly assess the quality of the water. This project is capable of evaluating three water parameters: temperature, pH, and water turbidity. This demonstrates that the project offers a convenient solution for water inspectors to guarantee the safety of water. In addition, this project stands out as an innovative approach in today's era where other projects are limited to examining only one parameter at a time. For example, if you need to analyze the acidity of water, there is a