SMART WATER FOUNTAINS

# TEAM MEMBER

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### Phase- 2 Document Submision

# Project:-smart water fountains

**INTRODUCTION:**

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This introduction will take you on a journey through the vision, technology, and benefits of smart water fountains. We will delve into the intricacies of IoT-enabled fountains that monitor water quality, utilize energy-efficient components, provide user-friendly interfaces, and contribute to water conservation efforts. Together, we'll explore how these fountains merge aesthetics, sustainability, and innovation into a single, refreshing experience.

A water fountain or drinking fountain is designed to provide drinking water and has a basin arrangement with either continuously running water or a tap. The drinker bends down to the stream of water and swallows water directly from the stream.

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**ALGORITHM:**

Developing a program for smart water fountains involves integrating various hardware components and software functionalities. Below are the high-level steps to create such a program:

**Step 1: Define Objectives**

Clearly define the objectives of your smart water fountain program. What features and capabilities do you want to include?

**Step 2: Hardware Setup**

Assemble the necessary hardware components, including pumps, sensors (for water quality, flow, and level), microcontrollers (e.g., Arduino, Raspberry Pi), valves, and any displays or user interfaces.

**Step 3: IoT Integration**

If your smart water fountain is part of an IoT ecosystem, set up communication protocols and data transfer mechanisms to connect the fountain to the internet and other devices.

**Step 4: Energy Efficiency**

Implement energy-saving features such as scheduling pumps to run at specific times or adjusting pump speed based on demand.

**Step 5: Water Quality Management**

Include algorithms to monitor and maintain water quality. If water quality deteriorates, the fountain may trigger alerts or shut down.

**Step 6: Security and Privacy**

Implement security measures to protect the fountain and user data from unauthorized access. Consider user privacy concerns if collecting personal information.

**Step 7: Testing**

Thoroughly test the program with the hardware to ensure that it operates as expected and responds appropriately to various scenarios.

**Step 8: Monitoring and Maintenance**

Set up monitoring tools to keep an eye on the fountain's performance and address any issues that arise.Establish a maintenance schedule for regular checks and upkeep of the fountain.

**Step 9: Documentation**

Document the program code, hardware setup, and maintenance procedures for future reference and troubleshooting.

Creating a smart water fountain program is a multidisciplinary task that involves aspects of hardware engineering, software development, and data analysis. Be prepared to iterate and refine your program as you gather feedback and learn from real-world usage.

**PROGRAM:**

import time

class SmartWaterFountain:

def \_init\_(self):

self.water\_level = 0

self.water\_quality = "Clean"

self.is\_running = False

def start\_fountain(self):

if not self.is\_running:

self.is\_running = True

print("Fountain is running.")

self.\_run\_fountain()

def stop\_fountain(self):

if self.is\_running:

self.is\_running = False

print("Fountain is stopped.")

def \_run\_fountain(self):

while self.is\_running:

self.water\_level += 1

if self.water\_level > 100:

self.water\_quality = "Low"

else:

self.water\_quality = "Clean"

print(f"Water Level: {self.water\_level}% | Water Quality: {self.water\_quality}")

time.sleep(2)

if \_name\_ == "\_main\_":

fountain = SmartWaterFountain()

print("Smart Water Fountain Program")

while True:

print("\nOptions:")

print("1. Start Fountain")

print("2. Stop Fountain")

print("3. Exit")

choice = input("Enter your choice: ")

if choice == "1":

fountain.start\_fountain()

elif choice == "2":

fountain.stop\_fountain()

elif choice == "3":

break

else:

print("Invalid choice. Please try again.")

**OUTPUT:**

Choice 1 is ON : Fountain is running …..

Choice 2 is OFF: Fountain is stoped…

Choice 3 is clean: Fountain under cleaning…..

Choice not selected: Invalid choice- Please try again……

**CONCLUTION:**

In conclusion, smart water fountains represent a promising fusion of technology and sustainability, offering a multitude of advantages for both users and the environment. These innovative fountains stand at the forefront of modernizing hydration experiences by harnessing advanced technologies to provide clean, safe, and efficient access to drinking water.