// Include the required libraries

#include <Arduino.h>

// Define the pin connected to the relay

const int relayPin = 2; // Change this to the actual pin you're using

void setup() {

// Initialize the relay pin as an output

pinMode(relayPin, OUTPUT);

// Start serial communication for debugging (optional)

Serial.begin(9600);

}

void loop() {

// Read commands from the serial port (sent by MIT App Inventor or other methods)

if (Serial.available() > 0) {

char command = Serial.read();

if (command == '1') {

// Turn the water pump on

digitalWrite(relayPin, HIGH);

Serial.println("Pump is ON");

} else if (command == '0') {

// Turn the water pump off

digitalWrite(relayPin, LOW);

Serial.println("Pump is OFF");

}

}

}

**Title: Smart Water Fountain Project Report**

**Abstract:**

A brief overview of the project, its objectives, and key outcomes.

**Table of Contents:**

**Introduction**

Background and motivation for the project.

Objectives and scope.

**Hardware Components**:

List and description of the hardware components used in the project (e.g., microcontroller, water pump, sensors).

Schematics and circuit diagrams.

**Software Components:**

Description of the software components used (e.g., Arduino code, MIT App Inventor).

Detailed explanation of the functionality of the software.

**System Architecture:**

Explanation of how the hardware and software components work together.

Flowcharts or diagrams illustrating the system architecture.

**Implementation:**

Step-by-step description of the implementation process.

Any challenges faced and how they were overcome.

**Mobile App Development:**

Details of the MIT App Inventor project.

Description of the app's user interface and features.

Explanation of how the app communicates with the hardware.

**Hardware Control:**

In-depth explanation of the Arduino code.How the microcontroller controls the water pump and interacts with sensors.

**Testing and Results:**

Information about the testing process.

Presentation of results, including the system's performance and reliability.

**Conclusion:**

Summary of the project's achievements.

Insights gained from the project.

**Future Improvements:**

Suggestions for future enhancements or modifications.

Ideas for expanding the project's capabilities.

**Acknowledgments:**

Recognition of individuals, organizations, or resources that contributed to the project's success.

**References:**

List of sources, code libraries, and references used in the project.

**Appendices:**

Supplementary materials such as code snippets, detailed schematics, and user manuals.

**Key Points to Address:**

*Detailed Technical Information*: Provide a comprehensive understanding of the hardware and software components and how they interact.

*Troubleshooting and Challenges:* Discuss any issues encountered during the project and how they were resolved.

*Testing:* Describe the methodology for testing the system and the results obtained.

*Lessons Learned:* Share insights and knowledge gained during the project.

Suggest possible improvements or extensions to the project.

*Clear and Professional Documentation:* Ensure that the report is well-organized, uses proper formatting, and includes clear diagrams and illustrations

References and Citations: Properly cite any external sources, libraries, or references used in the project.