Development part2

**Smart Water Fountain Features

Smart water fountains incorporate various features for convenience, efficiency, and user experience. Some common features include:

**Filtration system:

- Many smart fountains have built-in filtration systems to provide clean and fresh water to pets or people.

**Wi Fi Connectivity:

- Some models can connect to Wi-Fi networks, enabling remote control and monitoring via smartphone apps.

**Sensor:

- Smart fountains often include sensors to detect water levels, ensuring a continuous water supply.

**App Control:

- Users can control water flow, monitor water consumption, and receive alerts through dedicated mobile apps.

**Multiple Modes:

- They may offer different modes like continuous flow, scheduled dispensing, or customizable portion control.

**Water Quality Monitoring:

- Some fountains measure water quality parameters and provide alerts if issues are detected.

**Auto-Refill:

- A few models can automatically refill the water reservoir from a larger water source.

**Adjustable Flow:

- Smart fountains typically allow users to customize the flow rate to suit the needs of pets or individuals.

**Compatibility:

- They might be compatible with voice assistants like Alexa or Google Assistant for hands-free control.

**Energy Efficiency:

- Some models are designed to conserve energy, with features like sleep modes or power-saving options.

**Hydration Tracking:

- Smart fountains for pets may include features to monitor a pet's water intake and set hydration goals.

**Water Temperature Control:

- Some fountains can control the temperature of the water to keep it at a comfortable level.

- These features can vary among different smart water fountain models, so it's essential to choose one that suits your specific needs and preferences.

**Model Training :

```
*/
//define the input/output Int  refill pump
  = 6; // sets pin 7 as the output pin to the
Refill pump
Int  Submersible pump = 8; //de clear pin 8 as
Submersible pump pin
Const Int  Relay = 4;
Const int analog Pin = A0; // pin that the soil
moisture
Sensor is attached to
```

Const int threshold = 350; // an arbitrary threshold

Level that tell the amount of water in the soil is enough

#define float switch 3 //de clear pin 3 as float switch pin

// int the DS3231 using the hardware interface

#include <DS3231.h>

DS3231 rtc(SDA, SCL);

Time t;

Void setup(),{ Serial. begin(9600); //set up serial monitor Rtc. begin(); // Initialize the rtc object

//define the input/output pins pin Mode(Relay, OUTPUT); // set pin 4 relay pin

as output

Digital Write(Relay, LOW); pin Mode(Refill pump , OUTPUT); pin Mode(Submersible pump, OUTPUT);

Pin Mode(float switch, INPUT_PULLUP); //sets

Float switch pin which is pin 2 as input}

void loop () { // put your main code here, to run

repeatedly:

t = rtc get Time() Serial print(t. hour); Serial. print(“ hour(s), “); Serial. print(t. min); Serial .print(“ minute(s)”); serial. Print ln(“ “);

Delay (1000);

If(digital Read(float switch)== HIGH){ digital Write(Submersible pump, LOW); //T turn off

submersible pump digital Write(Refill pump, LOW); //turn on the pump}

else{ digital Write(Refill pump, HIGH);//turn on the pump digital Write(submersible pump, HIGH); //Turn off

submersible pump }

delay(1);

int moisture level = analog Read(analog Pin); //declare

analogue in value as the moisture level Serial. Print ln(moisture level);

If(moisture level > threshold) {

// t. hour is the hour to turn On and t. min is the minutes

To turn on

// the following lines will turn on at 7:00am to 7:15am

If (t. hour ==7 && t. min ==0) {digital Write(Relay ,HIGH);

Serial print ln (“pump ON”); }

Else if (t. hour ==7 && t. min ==1) {digital Write(Relay, HIGH); Serial. print ln(“pump ON”); }

```
 Else if (t. hour ==7 && t. min ==2) {digital
Write(Relay, HIGH); serial. Print ln("pump
ON"); }

 Else if (t. hour ==7 && t. min ==3) {digital
Write(Relay, HIGH);  Serial. Print ln("pump
ON"); }

 Else if (t. hour ==7 && t. min ==4)  {digital
Write(Relay, HIGH);  Serial. Print ln("pump
ON");

 Else if (t. hour ==7 && t. min ==5)  {digital
Write(Relay, HIGH);  Serial. Print ln("pump
ON"); }

 Else if (t. hour ==7 && t. min ==6)  {digital
Write(Relay, HIGH);
Serial. Print ln("pump ON"); }

 Else if (t. hour ==7 && t. min ==8)  {digital
Write( Relay  ,HIGH);  Serial. Print ln("pump
ON"); }
```

Else if (t. hour ==7 && t. min ==9) {digital Write(Relay, HIGH); Serial. print ln(“pump ON”); }

Else if (t. hour ==7 && t. min ==10) {digital Write(Relay, HIGH); Serial. Print ln(“pump ON”); }

Else if (t. hour ==7 && t. min ==11)

{digital Write(Relay, HIGH); Serial. Print ln(“pump ON”); }

Else if (t. hour ==7 && t. min ==12) {digital Write(Relay, HIGH); Serial. Print ln(“pump ON”); }

Else if (t. hour ==7 && t. min ==13) {digital Write(Relay ,HIGH); Serial. Print ln(“pump ON”); }

**Evaluation:

Else if (t. hour ==7 && t. min ==14) {digital Write(Relay, HIGH); Serial. Print ln("pump ON"); }

Else if (t. hour ==7 && t. min ==15) {digital Write(Relay ,HIGH); Serial. Print ln("pump ON"); }

////

//the following line will turn it on at 11:00am to

11:15am

Else if (t. hour ==11 && t. min ==0) {digital Write(Relay, HIGH); Serial. Print ln("pump ON"); }

Else if (t. hour ==11 && t. min ==1) {digital Write(Relay ,HIGH); Serial. Print ln("pump ON"); }

Else if (t. hour ==11 && t. min ==2) {digital Write(Relay, HIGH); Serial. Print ln("pump ON"); }

Else if (t. hour ==11 && t. min ==3) {digital Write(Relay ,HIGH); Serial. Print ln("pump ON"); }

Else if (t. hour ==11 && t. min ==4) {digital Write(Relay, HIGH); Serial. Print ln("pump ON"); }

Else if (t. hour ==11 && t. min ==5) {digital Write(Relay, HIGH); Serial. Print ln("pump ON"); }

Else if (t. hour ==11 && t. min ==6) {digital Write(Relay ,HIGH); serial .print ln("pump ON"); }

Else if (t. hour ==11 && t. min ==8) {digital Write(Relay ,HIGH); Serial. Print ln("pump ON"); }

Else if (t. hour ==11 && t. min ==9) {digital Write(Relay ,HIGH); Serial. Print ln("pump ON"); }

```
 Else if (t. hour ==11 && t. min ==10)  {digital
Write(Relay, HIGH);  Serial. Print ln("pump
ON"); }
 Else if (t. hour ==11 && t. min ==11)  {digital
Write(Relay ,HIGH);  Serial. Print ln("pump
ON"); }
 Else if (t. hour ==11 && t. min ==12)  {digital
Write(Relay ,HIGH);  Serial. Print ln("pump
ON"); }
 Else if (t. hour ==11 && t. min ==13)  {digital
Write(Relay ,HIGH); Serial. Print ln("pump
ON"); }
 Else if (t. hour ==11 && t. min ==14)  {digital
Write(Relay ,HIGH);  Serial. Print ln("pump
ON"); }
 Else if (t. hour ==11 && t. min ==15)  {digital
write(Relay ,HIGH);  Serial. Print ln("pump
ON"); }
//////////////////////////
```

// the following lines will turn it on at 6:00pm to

6:15pm

Else if (t. hour ==18 && t. min ==0) {digital Write (Relay ,HIGH); Serial. Print ln(“pump ON”); }

Else if (t. hour ==18 && t. min ==1) {digital Write (Relay ,HIGH); Serial. Print ln (“pump ON”); }

Else if (t. hour ==18 && t. min ==2) {digital Write (Relay ,HIGH); Serial Print ln (“pump ON”); }

Else if (t. hour ==18 && t. min ==3) {digital Write (Relay ,HIGH); Serial. Print ln (“pump ON”); }

Else if (t. hour ==18 && t. min ==4) {digital Write (Relay,HIGH); Serial . print ln (“pump ON”); }

```
Else if (t. hour ==18 && t. min ==5)  {digital
Write (Relay ,HIGH);
Serial. Print ln (“pump ON”); } Else if (t. hour
==18 && t. min ==6)
{digital Write (Relay ,HIGH);
Serial. Print ln(“pump ON”); }
Else if (t. hour ==18 && t. min ==8)
{digital Write (Relay ,HIGH);
Serial. Print ln (“pump ON”); }
Else if (t. hour ==18 && t. min ==9)
{digital Write (Relay, HIGH);
Serial print ln(“pump ON”); }
Else if (t. hour ==18 && t. min ==10)
{digital Write (Relay ,HIGH);
```

To evaluate the output of smart water fountains, you can consider the following factors

** Water Quality:

- Assess the quality of the water dispensed by the fountain. It should be clean, safe, and free from contaminants.

**Water Dissipation Mechanism:

- Assess the ease of use and reliability of the water dispensing mechanism. It should be user-friendly and efficient.

**Water Conservation Look:

- Look for features that promote water conservation, such as sensors that dispense water only when needed.