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\* Project Name:

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\* Filename: .ino

\* Functions: TypeOfToilet(), WaterPump\_ON(), Rotate(), WaterPump\_OFF(), Detergent\_ON(), Detergent\_OFF(), clean\_brush(), Return\_NormalPosition().

\* Global Variables: servo\_1, servo2, servo3, servo4, buttonState, buttonPin,angle\_1, angle2, angle3, angle4.

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#include <Servo.h> //Servo library

Servo servo\_1; //initialize a servo object for the connected servo

Servo servo2; //initialize a servo object for the connected servo

Servo servo3; //initialize a servo object for the connected servo

Servo servo4; //initialize a servo object for the connected servo

int angle\_1 = 90; //assume initial angle as 90 degree for servo motor 1

int angle2 = 90; //assume initial angle as 90 degree for servo motor 2

int angle3 = 90; //assume initial angle as 90 degree for servo motor 3

int angle4 = 90; //assume initial angle as 90 degree for servo motor 4

int buttonState = 0;

int buttonPin=0;

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\* Function Name: setup()

\* Input: switch

\* Output: Assign the pins on arduino for input and output

\* Logic: Sets the pin as input or output

\* Example Call: setup()

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void setup()

{

servo\_1.attach(5);// attach the signal pin of servo to pin9 of arduino

servo2.attach(6);

servo3.attach(9);

servo4.attach(10);

pinMode(2,INPUT);

pinMode(3,OUTPUT);

pinMode(A0,OUTPUT);

}

/\*

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\* Function Name: TypeOfToilet()

\* Input: None

\* Output: Controls servo\_motor\_1

\* Logic: Write high into motor pins to make the motor to rotate in a direction to pull the drone from water.

\* Example Call: TypeOfToilet()

\*

\*/

void TypeOfToilet()

{

int sensorValue = digitalRead(2);

buttonState = digitalRead(buttonPin);

if (buttonState == HIGH)

{

angle2=45;

servo2.write(angle2); //command to rotate the servo to the specified angle

delay(1000);

}

else if (buttonState == LOW)

{

angle2=75;

servo2.write(angle2); //command to rotate the servo to the specified angle

delay(1000);

}

}

/\*

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\* Function Name: WaterPump\_ON()

\* Input: None

\* Output: Controls Watrer pump

\* Logic: Write high into solenoid pins to open the tap.

\* Example Call: WaterPump\_ON()

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\*/

void Water\_ON()

{

digitalWrite(3,HIGH);

}

/\*

\*

\* Function Name: WaterPump\_OFF()

\* Input: None

\* Output: Controls Watrer pump

\* Logic: Write high into solenoid pins to close the tap.

\* Example Call: WaterPump\_OFF()

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\*/

void Water\_OFF()

{

digitalWrite(3,LOW);

}

/\*

\*

\* Function Name: Detergent\_ON()

\* Input: None

\* Output: Controls detergent pump

\* Logic: Write high into pins to open the tap.

\* Example Call: Detergent\_ON()

\*

\*/

void Detergent\_ON()

{

digitalWrite(A0,HIGH);

}

/\*

\*

\* Function Name: Detergent\_ON()

\* Input: None

\* Output: Controls detergent pump

\* Logic: Write high into pins to open the tap.

\* Example Call: Detergent\_ON()

\*

\*/

void Detergent\_OFF()

{

digitalWrite(A0,LOW);

}

/\*

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\* Function Name: Arm\_Rotate()

\* Input: None

\* Output: Controls servo motors

\* Logic: Write high into motor pins to make the motor to rotate in a direction to pull the drone from water.

\* Example Call: Arm\_Rotate()

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\*/

void Arm\_Rotate()

{

angle\_1 = 120;

servo\_1.write(angle\_1); //command to rotate the servo to the specified angle

delay(3000);

angle3 = 75;

servo3.write(angle3); //command to rotate the servo to the specified angle

delay(3000);

angle4 = 90;

servo4.write(angle4); //command to rotate the servo to the specified angle

delay(500);

while(angle\_1>=60)

{

servo\_1.write(angle\_1); //command to rotate the servo to the specified angle

delay(3000);

angle\_1=angle\_1-10;

delay(1000);

}

}

/\*

\*

\* Function Name: Clean\_Toilet()

\* Input: None

\* Output: Controls servo motors

\* Logic: Write high into motor pins to make the motor to rotate in a direction to pull the drone from water.

\* Example Call: Clean\_Toilet()

\*

\*/

void Clean\_Toilet()

{

angle\_1 = 120;

servo\_1.write(angle\_1); //command to rotate the servo to the specified angle

delay(3000);

angle3 = 75;

servo3.write(angle3); //command to rotate the servo to the specified angle

delay(3000);

angle4= 90;

servo4.write(angle4); //command to rotate the servo to the specified angle

delay(3000);

while(angle\_1>=60)

{

servo\_1.write(angle\_1); //command to rotate the servo to the specified angle

delay(3000);

angle\_1=angle\_1-10;

delay(1000);

}

}

/\*

\*

\* Function Name: clean\_brush()

\* Input: None

\* Output: Controls servo motors

\* Logic: Write high into motor pins to make the motor to rotate in a direction to pull the drone from water.

\* Example Call: clean\_brush()

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\*/

void clean\_brush()

{

servo4.write(angle4); //command to rotate the servo to the specified angle

delay(3000);

}

void brush\_up()

{

angle4 = 180;

servo4.write(angle4); //command to rotate the servo to the specified angle

delay(2000);

}

void brush\_down()

{

angle4 = 0;

servo4.write(angle4); //command to rotate the servo to the specified angle

delay(2000);

}

/\*

\* Function Name: Return\_NormalPosition()

\* Input: None

\* Output: all the servo motors come back rest position

\* Logic:

\* Example Call: Return\_NormalPosition()

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\*/

void Return\_NormalPosition()

{

angle\_1=90;

servo\_1.write(angle\_1); //command to rotate the servo to the specified angle

delay(1000);

angle2=90;

servo2.write(angle2); //command to rotate the servo to the specified angle

delay(1000);

angle\_1=90;

servo3.write(angle3); //command to rotate the servo to the specified angle

delay(1000);

angle4=90;

servo4.write(angle4); //command to rotate the servo to the specified angle

delay(1000);

}

/\*

\* Function Name: loop()

\* Input: None

\* Output: Continiously runs the program in a loop

\* Logic: Runs program in a loop

\* Example Call: loop()

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\*/

void loop()

{

TypeOfToilet();

brush\_up();

Water\_ON();

Arm\_Rotate();

Water\_OFF();

Detergent\_ON();

Arm\_Rotate();

Detergent\_OFF();

clean\_brush();

Water\_ON();

delay(2000);

Water\_OFF();

Clean\_Toilet();

clean\_brush();

brush\_down();

Water\_ON();

delay(5000);

Water\_OFF();

Return\_NormalPosition();

}