

Arduino Code

```
#include <AccelStepper.h>
```

```
AccelStepper stepperX(AccelStepper::DRIVER, 3, 2);
```

```
const int button_pin = 4;
```

```
const int switch_pin = 7;
```

```
int red_LED_pin= 11;
```

```
int green_LED_pin = 10;
```

```
int blue_LED_pin = 9;
```

```
//The flow rate we set
```

```
float mlFlowRate = 100;
```

```
int minFlowRate = 1;
```

```
//other constants
```

```
float rodPitch = 8;
```

```
float stepsPerRev = 200;
```

```
float bigS= 0.2717163486; // cross sectional area of big syringe
```

```
float smallS= 0.1038689; //cross sectional area of small syringe
```

```
float flowRate = mlFlowRate/minFlowRate;
```

```
float spd= flowRate*0.01666/(rodPitch/stepsPerRev*bigS);
```

```
void setup() {
```

```
    Serial.begin(9600);
```

```
    delay(1000);
```

```
    Serial.print("spd = ");
```

```
        Serial.println(spd);
```

```
        Serial.println(" steps/sec");
```

```
    pinMode(button_pin, INPUT_PULLUP);
```

```
    pinMode(red_LED_pin, OUTPUT);
```

```
    pinMode(green_LED_pin, OUTPUT);
```

```
    pinMode(blue_LED_pin, OUTPUT);
```

```
    pinMode(switch_pin, INPUT_PULLUP);
```

```
    stepperX.setMaxSpeed(1000);
```

```
    stepperX.setSpeed(spd);
```

```
}
```

```
void RGB_color(int red_light_value, int green_light_value, int blue_light_value)
```

```
{
```

```
  analogWrite(red_LED_pin, red_light_value);
```

```
  analogWrite(green_LED_pin, green_light_value);
```

```
  analogWrite(blue_LED_pin, blue_light_value);
```

```
}
```

```
void loop(){
```

```
  if (digitalRead(button_pin)==LOW and digitalRead(switch_pin)==HIGH){
```

```
    stepperX.runSpeed();
```

```
    RGB_color(0,255,0);}
```

```
  else if (digitalRead(button_pin)==HIGH and digitalRead(switch_pin)==HIGH) {
```

```
    RGB_color(255,75,0);}
```

```
  else if (digitalRead(switch_pin)==LOW){
```

```
    RGB_color(255,0,0);}
```

```
  }
```

```
}
```