

```
// "A Levitating Sphere Rotates Glows and Blinks"  
// Levitate with the simple PI control.  
// Supply 5–6V to the motor driver IC connected with the levitation coil.  
// Attach the Hall effect sensor "UGN3503UA" to the head of the core of the coil.  
// Stack 3 or 4 neodymium magnets (10–15mm Dia.).  
// Attach the N pole of the stacked magnets to the levitating object. (S pole up)  
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```

```
int x, y;  
int recX1, recX2;  
const int cp = 192; //Adjust the value of cp, kA or kB to levitate.  
const int kA = 87;  
const int kB = 55;
```

```
void setup () {  
  TCCR1B &= B11111000;  
  TCCR1B |= B00000001;  
  pinMode(9, OUTPUT);  
  pinMode(10, OUTPUT);  
  pinMode(11, OUTPUT);  
}
```

```
void loop () {  
  recX2 = recX1;  
  recX1 = x;  
  x =analogRead(0);  
  y =min( max( (x-cp)*kA + (2*x-recX1-recX2)*kB, -255), 255 );  
  if ( y > 0 ) {  
    analogWrite( 9, y );  
    PORTB |= _BV(2);  
    PORTB &= ~_BV(3);  
  }else {  
    analogWrite( 9, -y );  
    PORTB |= _BV(3);  
    PORTB &= ~_BV(2);  
  }  
}
```