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# Lab Activity Speed Control

**CPE C312 – EMBEDDED SYSTEMS**

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## Code:

```
// Thesisinism
// Lab Activity Speed Control

#include "AFMotor.h"

const int MOTOR_1 = 1;
const int MOTOR_2 = 2;
const int MOTOR_3 = 3;
const int MOTOR_4 = 4;

AF_DCMotor motor1(MOTOR_1, MOTOR12_64KHZ); // create motor object, 64KHz pwm
AF_DCMotor motor2(MOTOR_2, MOTOR12_64KHZ); // create motor object, 64KHz pwm
AF_DCMotor motor3(MOTOR_3, MOTOR12_64KHZ); // create motor object, 64KHz pwm
AF_DCMotor motor4(MOTOR_4, MOTOR12_64KHZ); // create motor object, 64KHz pwm

const int speed = 200;

void setup() {
  // Initialize serial port
  Serial.begin(9600);
  Serial.println("Start");

  // Set the motor speed: 0-255
  motor1.setSpeed(speed);
  motor2.setSpeed(speed);
  motor3.setSpeed(speed);
  motor4.setSpeed(speed);
}

void loop() {
  increaseSpeed();
  decreaseSpeed();
  robot_stop();
  delay(3000);
}

void increaseSpeed(){
  for(int i=0; i<=255; i++){
  motor1.setSpeed(i);
  motor2.setSpeed(i);
  motor3.setSpeed(i);
  motor4.setSpeed(i);
  robot_forward();
  delay(50);
  Serial.print("Speed: ");
  Serial.println(i);
  }
}

void decreaseSpeed(){
  for(int i=255; i>=0; i--){
  motor1.setSpeed(i);
  motor2.setSpeed(i);
  motor3.setSpeed(i);
  motor4.setSpeed(i);
  robot_forward();
  delay(50);
  Serial.print("Speed: ");
  Serial.println(i);
  }
}
```

```
void robot_forward() {
  motor1.run(FORWARD);
  motor2.run(FORWARD);
  motor3.run(FORWARD);
  motor4.run(FORWARD);
  Serial.println("Move forward.");
}

void robot_right() {
  motor1.run(FORWARD);
  motor2.run(FORWARD);
  motor3.run(BACKWARD);
  motor4.run(BACKWARD);
  Serial.println("Turn RIGHT.");
}

void robot_left() {
  motor1.run(BACKWARD);
  motor2.run(BACKWARD);
  motor3.run(FORWARD);
  motor4.run(FORWARD);
  Serial.println("Turn LEFT.");
}

void robot_stop() {
  motor1.run(RELEASE);
  motor2.run(RELEASE);
  motor3.run(RELEASE);
  motor4.run(RELEASE);
  Serial.println("Stop.");
}
```

**Output:**