```
#include <AFMotor.h>
AF_DCMotor leftmotors(2, MOTOR12_64KHZ);
AF_DCMotor rightmotors(1, MOTOR12_64KHZ);
AF_DCMotor armmotor(4, MOTOR34_64KHZ);
#define trigPin 12 // define the pins of the distance sensor
#define echoPin 13
void setup() {
leftmotors.setSpeed(255); // set the speed to full speed 255/255
rightmotors.setSpeed(255); //set the speed to full speed 255/255
armmotor.setSpeed(255); //set the speed for the arm
Serial.begin(9600); // begin serial communitication
Serial.println("Motor test!");
pinMode(trigPin, OUTPUT);// set the trig pin to output (Send sound waves)
pinMode(echoPin, INPUT);// set the echo pin to input (recieve sound waves)
}
void loop() {
long duration, distance; // start the scan
digitalWrite(trigPin, LOW);
delayMicroseconds(2); // delays are required for a succesful sensor operation.
digitalWrite(trigPin, HIGH);
delayMicroseconds(10); //this delay is required as well!
digitalWrite(trigPin, LOW);
duration = pulseIn(echoPin, HIGH);
distance = ((duration/2) / (29.1));// convert the distance to centimeters.
```

```
if (distance < 10) /*if there's obstacle 10 centimers ahead, do the following: */ {
Serial.println ("Close Obstacle detected!" );
Serial.println ("Obstacle Details:");
Serial.print ("Distance From Robot is " );
Serial.print ( distance);
Serial.print ( " CM!");// print out the distance in centimeters.
Serial.println (" The obstacle is declared a threat due to close distance. ");
Serial.println (" Taking !");
STOP();
ARMF();
delay(2000);
ARMR();
BACKW();
delay(4000);
LEFT();
delay(2000);
FORW();
delay(3000);
RIGHT();
delay(2000);
FORW();
delay(8000);
STOP();
```

```
delay(4000);
ARMB();
delay(3000);
ARMR();
}
else {
Serial.println ("No obstacle detected. going forward");
delay (15);
FORW();
}
}
void FORW() {
leftmotors.run(FORWARD); // 2 left motors go in forward direction
rightmotors.run(FORWARD); // 2 right motors go in forward direction
}
void BACKW() {
leftmotors.run(BACKWARD); // 2 left motors go in backward direction
rightmotors.run(BACKWARD); // 2 right motors go in backward direction
}
void STOP() {
leftmotors.run(RELEASE); // stop 2 left motors
rightmotors.run(RELEASE); // stop 2 right motors
}
void LEFT(){
```

```
leftmotors.run(FORWARD); //2 left motors go in forward direction

rightmotors.run(BACKWARD); //2 right motors go in backward direction. This make the robot spin to the left 90 degree.

}

void RIGHT() {

leftmotors.run(BACKWARD); //the other way.

rightmotors.run(FORWARD);

}

void ARMF() {

armmotor.run(FORWARD);

}

void ARMB() {

armmotor.run(BACKWARD);

}

void ARMR() {

armmotor.run(RELEASE);

}
```