

```
/*  
Six legged robot –Hexapod by Ferdie Rubio Ver 1.0  
May 7, 2014 1:37am - forward walk, turn left and right WORKING!!!  
Robot check object in front, move forward if obstruction(s) greater than .15m else halt and find way  
(either go left or go right).  
see sketch six_leggedCompleteMovever2.ino  
*/
```

```
#include <Servo.h> //includes the servo library
```

```
int servopin = 7;  
int triggerpin = 2;  
int echopin = 3;  
float distance = 0;  
float leftdist = 0;  
float rightdist = 0;  
float object = .15; //distance at which the robot should look  
//for another route (Less than or equal to 0.15 m)  
Servo pingservo;
```

```
void setup ()  
{  
  Serial.begin(9600);  
  pinMode(triggerpin,OUTPUT);  
  pinMode(echopin,INPUT);  
  pingservo.attach(servopin);  
  pingservo.write(100);  
  delay(700);  
}  
void loop(){  
  digitalWrite(triggerpin,LOW);  
  delayMicroseconds(5);  
  // Check distance from object  
  digitalWrite(triggerpin,HIGH);  
  delayMicroseconds(10);  
  digitalWrite(triggerpin,LOW);  
  // Acquire and convert to meter.  
  distance=pulseIn(echopin,HIGH);  
  distance=distance*0.0001657;  
  
  if(distance > object) { //if distance is more than 0.15 m  
    forward(); //then move forward  
  }  
  if(distance <= object) { //if distance is less than or equal to 0.15 m  
    findroute();  
  }  
}
```

```

void forward() {           // go forward

//<<program here...>>
  Serial.write(0x02); // stx Set A

Serial.print("0,1500,7,1,1300,7,2,1500,7,3,1300,7,4,1500,7,5,1900,7,6,1500,7,7,1500,7,8,1500,7,9,1500,
7,10,1500,7,11,1100,7");
Serial.write(0x03); //etx
delay(500);

Serial.write(0x02); // stx Set B

Serial.print("0,1500,7,1,1500,7,2,1700,7,3,1500,7,4,1300,7,5,1700,7,6,1500,7,7,1300,7,8,1500,7,9,1700,
7,10,1700,7,11,1300,7");
Serial.write(0x03); //etx
delay(500);

Serial.write(0x02); // stx Set C

Serial.print("0,1500,7,1,1700,7,2,1500,7,3,1700,7,4,1500,7,5,1500,7,6,1500,7,7,1100,7,8,1500,7,9,1900,
7,10,1500,7,11,1500,7");
Serial.write(0x03); //etx
delay(500);

Serial.write(0x02); // stx Set D

Serial.print("0,1300,7,1,1500,7,2,1500,7,3,1500,7,4,1500,7,5,1700,7,6,1700,7,7,1300,7,8,1300,7,9,1700,
7,10,1500,7,11,1300,7");
Serial.write(0x03); //etx
delay(500);

  // return;
}
void findroute() {
  halt();           // stop
// backward();     //go backward for short period
  lookleft();      //check left side
  lookright();     //check right side
  if ( leftdist > rightdist ) //compare distance left and right side
    turnleft();
  else
    turnright ();
}

void lookleft() {
  pingservo.write(170);
  delay(700);      //wait for the servo 160 degrees
}

```

```

digitalWrite(triggerpin,LOW);
delayMicroseconds(5);
    // check distance
digitalWrite(triggerpin,HIGH);
delayMicroseconds(10);
digitalWrite(triggerpin,LOW);
leftdist = pulseIn(echopin,HIGH);
leftdist = leftdist*0.0001657;
pingservo.write(100);
delay(700);          //wait for the servo
return;
}

```

```

void lookright () {
pingservo.write(30);
delay(700);          //wait for the servo 10 degrees
digitalWrite(triggerpin,LOW);
delayMicroseconds(5);    // check distance
digitalWrite(triggerpin,HIGH);
delayMicroseconds(10);
digitalWrite(triggerpin,LOW);
rightdist =pulseIn(echopin,HIGH);
rightdist=rightdist*0.0001657;
pingservo.write(100);
delay(700);          //wait for the servo
return;
}

```

```

void turnleft () {

```

```

//<<program here...>>

```

```

Serial.write(0x02); // stx Set A

```

```

Serial.print("0,1500,7,1,1300,7,2,1500,7,3,1700,7,4,1500,7,5,1900,7,6,1500,7,7,1100,7,8,1500,7,9,1500,7,10,1500,7,11,1500,7");

```

```

Serial.write(0x03); //etx

```

```

delay(500);

```

```

Serial.write(0x02); // stx Set B

```

```

Serial.print("0,1500,7,1,1500,7,2,1700,7,3,1500,7,4,1300,7,5,1700,7,6,1500,7,7,1300,7,8,1500,7,9,1700,7,10,1700,7,11,1300,7");

```

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Serial.write(0x03); //etx

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delay(500);

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```

Serial.write(0x02); // stx Set C

```

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Serial.print("0,1500,7,1,1700,7,2,1500,7,3,1300,7,4,1500,7,5,1500,7,6,1500,7,7,1500,7,8,1500,7,9,1900,7,10,1500,7,11,1100,7");  
Serial.write(0x03); //etx  
delay(500);
```

```
Serial.write(0x02); // stx Set D
```

```
Serial.print("0,1300,7,1,1500,7,2,1500,7,3,1500,7,4,1500,7,5,1700,7,6,1700,7,7,1300,7,8,1300,7,9,1700,7,10,1500,7,11,1300,7");  
Serial.write(0x03); //etx  
delay(500);
```

```
//2nd step
```

```
Serial.write(0x02); // stx Set A
```

```
Serial.print("0,1500,7,1,1300,7,2,1500,7,3,1700,7,4,1500,7,5,1900,7,6,1500,7,7,1100,7,8,1500,7,9,1500,7,10,1500,7,11,1500,7");  
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//3rd step
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Serial.write(0x03); //etx
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delay(500);

Serial.write(0x02); // stx Set B

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7,10,1500,7,11,1300,7");
Serial.write(0x03); //etx
delay(500);

//delay(1000);          // wait for the robot to make the turn left
  halt();
// return;
}

void turnright () {

//<<program here...>>
Serial.write(0x02); // stx Set A

Serial.print("0,1500,7,1,1700,7,2,1500,7,3,1300,7,4,1500,7,5,1500,7,6,1500,7,7,1500,7,8,1500,7,9,1900,
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7,10,1700,7,11,1300,7");
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Serial.write(0x03); //etx  
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//2nd step
```

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Serial.print("0,1500,7,1,1700,7,2,1500,7,3,1300,7,4,1500,7,5,1500,7,6,1500,7,7,1500,7,8,1500,7,9,1900,7,10,1500,7,11,1100,7");  
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//3rd step
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Serial.write(0x03); //etx
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delay(500);

Serial.write(0x02); // stx Set B

Serial.print("0,1500,7,1,1500,7,2,1700,7,3,1500,7,4,1300,7,5,1700,7,6,1500,7,7,1300,7,8,1500,7,9,1700,
7,10,1700,7,11,1300,7");
Serial.write(0x03); //etx
delay(500);

Serial.write(0x02); // stx Set C

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7,10,1500,7,11,1500,7");
Serial.write(0x03); //etx
delay(500);

Serial.write(0x02); // stx Set D

Serial.print("0,1300,7,1,1500,7,2,1500,7,3,1500,7,4,1500,7,5,1700,7,6,1700,7,7,1300,7,8,1300,7,9,1700,
7,10,1500,7,11,1300,7");
Serial.write(0x03); //etx
delay(500);

//delay(1000);           // wait for the robot to make the turn right
halt();
// return;
}

void halt () {

// <<program here...>>

Serial.write(0x02); // stx      stop

Serial.print("0,1500,7,1,1500,7,2,1500,7,3,1500,7,4,1500,7,5,1500,7,6,1500,7,7,1500,7,8,1500,7,9,1500,
7,10,1500,7,11,1500,7");
Serial.write(0x03); //etx
delay(1000);

//delay(500); //wait after stopping
//return;
}

```