

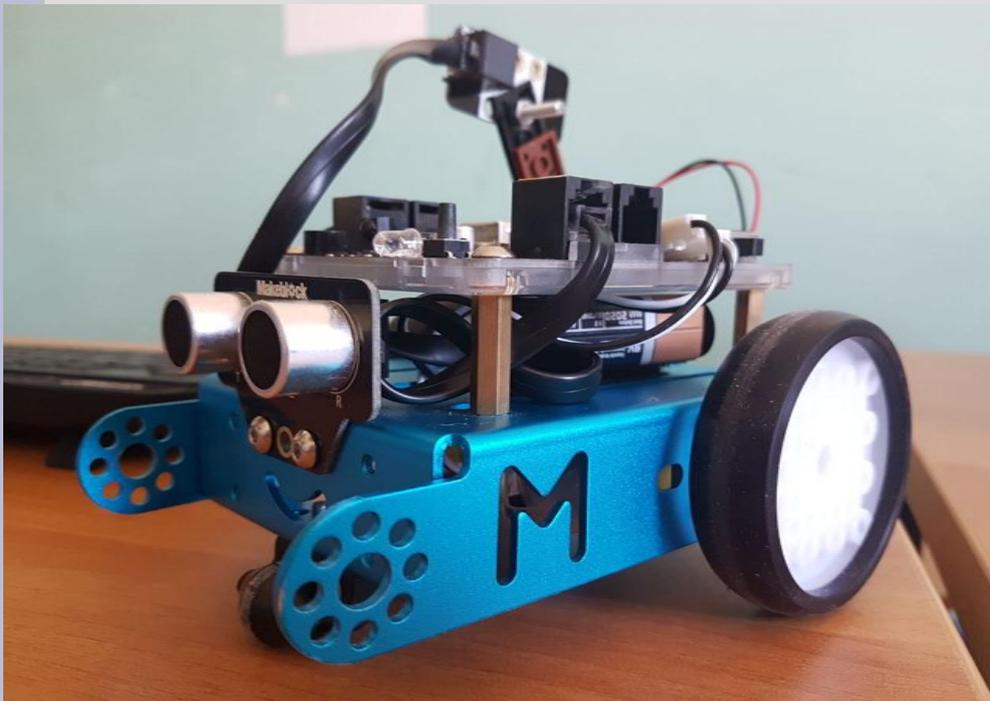
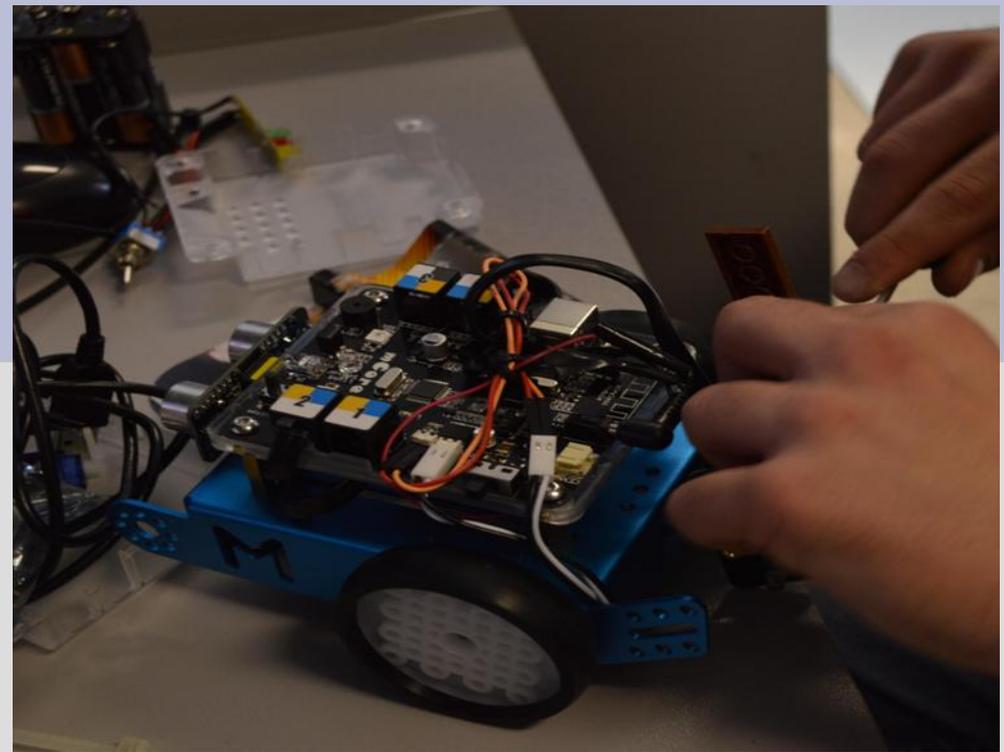
Robottando Skills Together



Liceo Scientifico
“Nicola Sensale”
Nocera Inferiore (Sa)

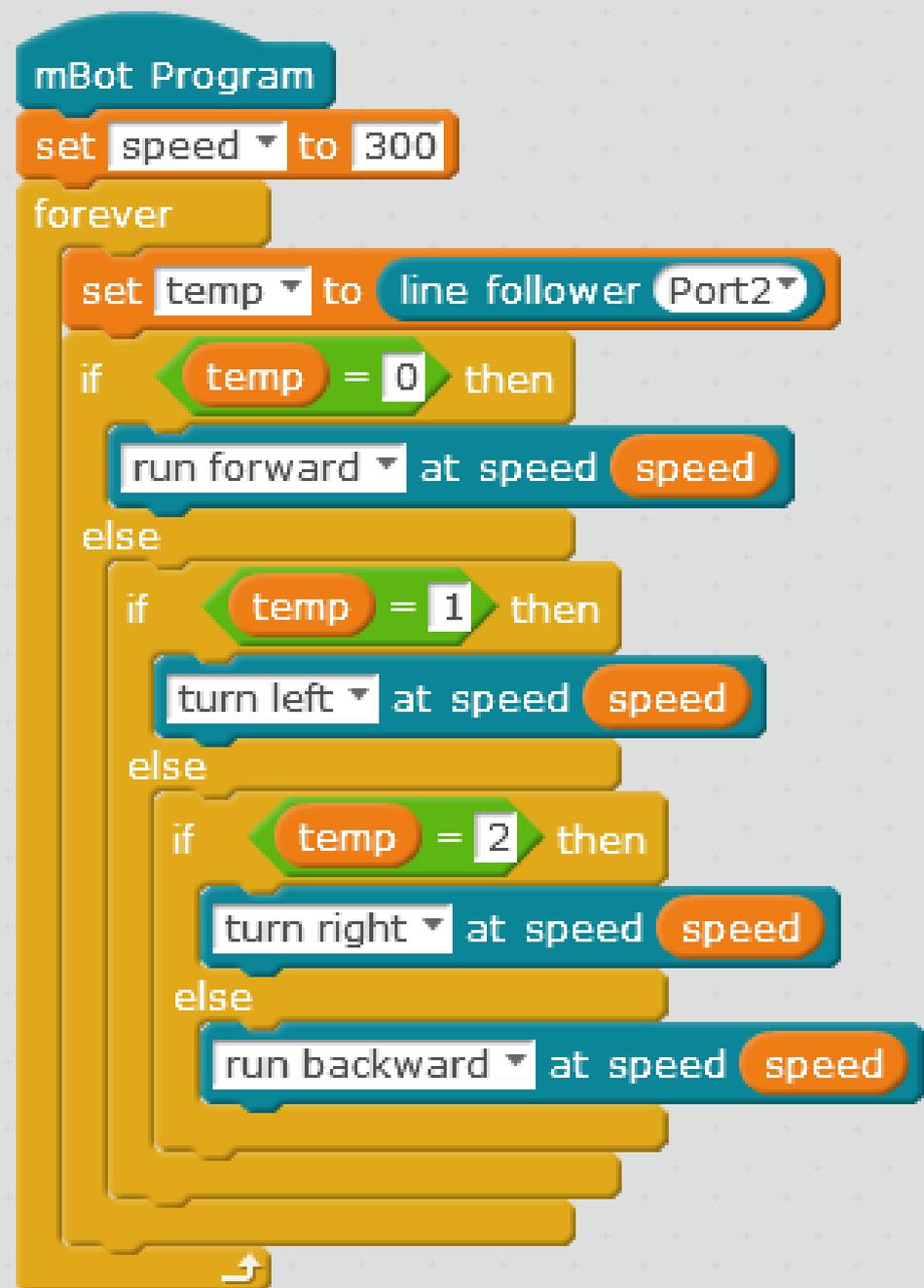
3°G

Robot segui-linea Sensore Me Line Follower V2.2



Robot rileva luce e suono Sensore Me Ultrasonic Sensor V3.0

Software Robot Segui-linea



Software Robot rileva luce e suono

```
#include <AFMotor.h>
#define swap(a, b) { int16_t t = a; a = b; b = t; }
#define MAX_SPEED 80 // sets speed of DC
traction motors to 180/256 or about 70% of full
speed - to get power drain down.
AF_DCMotor motor1(3, MOTOR12_1KHZ);
//create motor #1 using M1 output on Motor
//Drive Shield, set to 1kHz PWM frequency
//AF_DCMotor motor2(4, MOTOR12_1KHZ);
//create motor #2, using M2 output, set to
//1kHz PWM frequency
int trigger=9;
int echo=10;
int somma=0;
int media=0;
const int n=10;
int VETT[n];
int sensoreluce=A3;
int val_luce;
void setup() {
  pinMode(sensoreluce, OUTPUT);
  pinMode(trigger, OUTPUT);
  pinMode(echo, INPUT);
  Serial.begin(9600);
}
void loop() {
  digitalWrite(trigger, LOW);
  digitalWrite(echo, HIGH);
  delay(10);
  CARICAVETTO();
  ORDINAMENTO();
  CALCOLOMEDIA();
  if(media > 20) {
    muoviti();
  }
  else {
    fermati();
  }
}
```

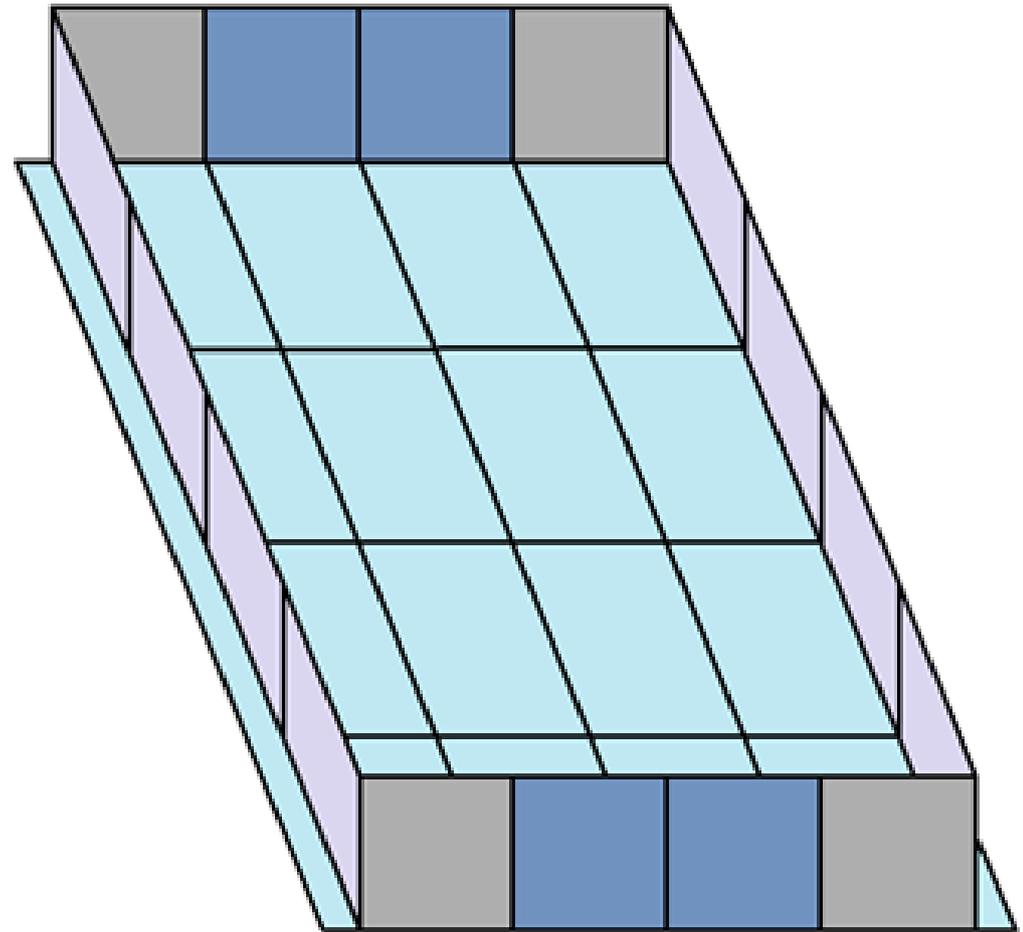
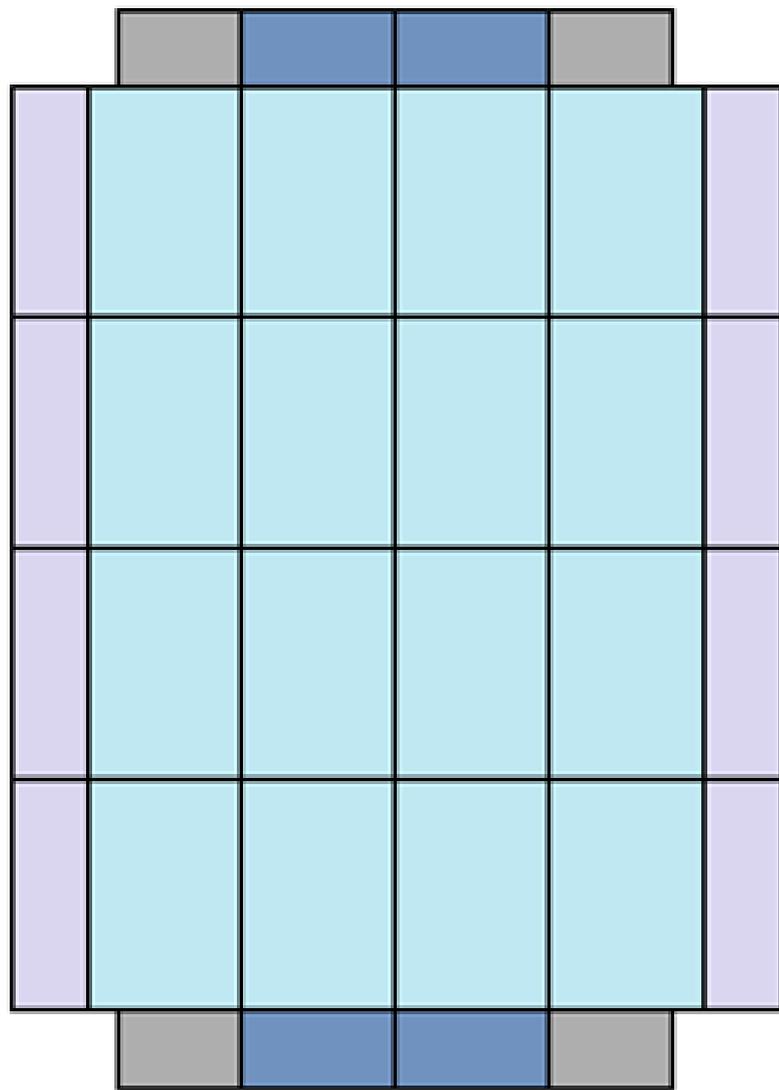
```
delay(50);
guardo_dx();
}
luce();
void CARICAVETTO() {
  for (int i=0; i<n; i++) {
    digitalWrite(trigger, LOW);
    long durata = pulseIn(echo, HIGH);
    long distanza = durata/2;
    VETT[i] = distanza;
  }
}
void ORDINAMENTO() {
  int i, LIMITE;
  bool ORDINATO;
  LIMITE = n;
  do
  {
    ORDINATO = true;
    LIMITE = LIMITE - 1;
    for (i=0; i<LIMITE; i++)
    {
      if (VETT[i] > VETT[i+1])
      {
        swap(VETT[i], VETT[i+1]);
        ORDINATO = false;
      }
    }
  } while (ORDINATO == false);
  delay(50);
}
void CALCOLOMEDIA() {
  somma = 0;
  for (int i=0; i<n-4; i++) {
    somma = somma + VETT[i];
  }
  media = abs(somma / (n-4));
  Serial.print("media = ");
```

```
Serial.print(media);
Serial.print("\n");
delay(1000);
}
void muoviti() {
  motor1.run(FORWARD);
  motor2.run(FORWARD);
  motor1.setSpeed(MAX_SPEED);
  motor2.setSpeed(MAX_SPEED);
  delay(50);
}
void fermati() {
  motor1.run(FORWARD);
  motor2.run(FORWARD);
  motor1.setSpeed(0);
  motor2.setSpeed(0);
  delay(50);
}
void retromarcia() {
  motor1.run(BACKWARD);
  motor2.run(BACKWARD);
  motor1.setSpeed(MAX_SPEED);
  motor2.setSpeed(MAX_SPEED);
  delay(50);
}
void gira_sx() {
  motor1.run(FORWARD);
  motor2.run(FORWARD);
  motor1.setSpeed(0);
  motor2.setSpeed(MAX_SPEED);
  delay(900);
}
void gira_dx() {
  motor1.run(FORWARD);
  motor2.run(FORWARD);
  motor1.setSpeed(MAX_SPEED);
  motor2.setSpeed(0);
```

```
delay(900);
}
void guardo_dx() {
  gira_dx();
  delay(10);
  fermati();
  digitalWrite(trigger, LOW);
  digitalWrite(echo, HIGH);
  delay(10);
  CARICAVETTO();
  ORDINAMENTO();
  CALCOLOMEDIA();
  if(media <= 20) {
    gira_sx();
    gira_sx();
    delay(50);
    fermati();
  }
  else {
    muoviti();
    delay(50);
  }
}
void luce() {
  val_luce = analogRead(sensoreluce);
  Serial.println(val_luce);
  delay(100);
  if(val_luce > 2) {
    fermati();
    delay(3000);
  }
  else {
    muoviti();
  }
}
```

Percorso





-  16 pannelli 101 x 50
-  8 pannelli laterali 101x30
-  4 Pannelli 44x30
-  4 pannelli 50 x 30

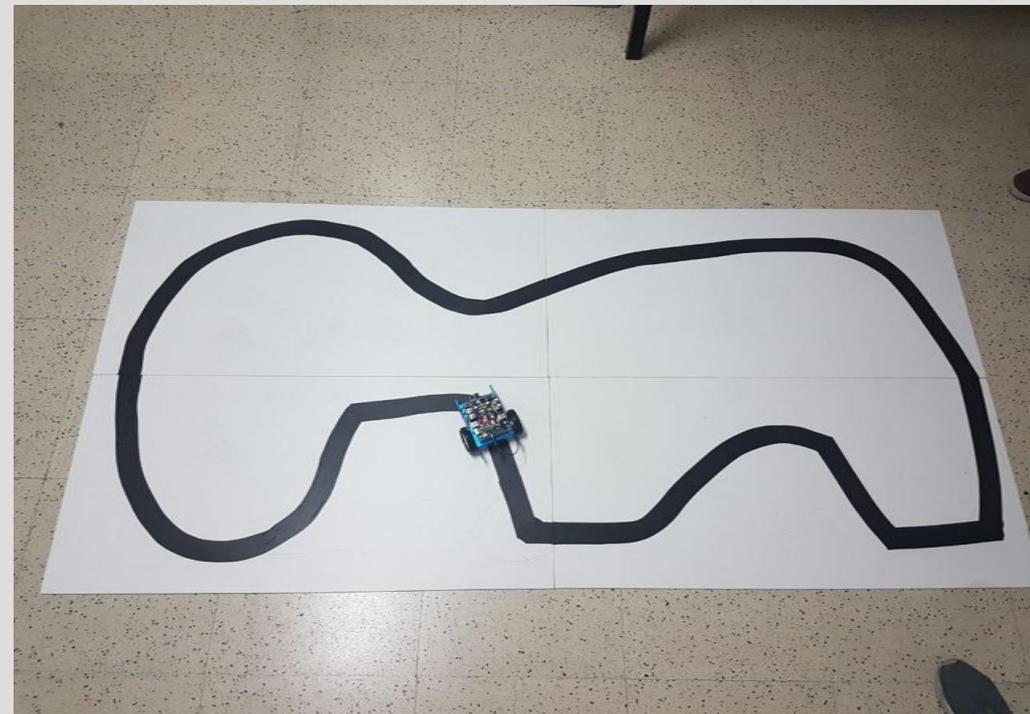
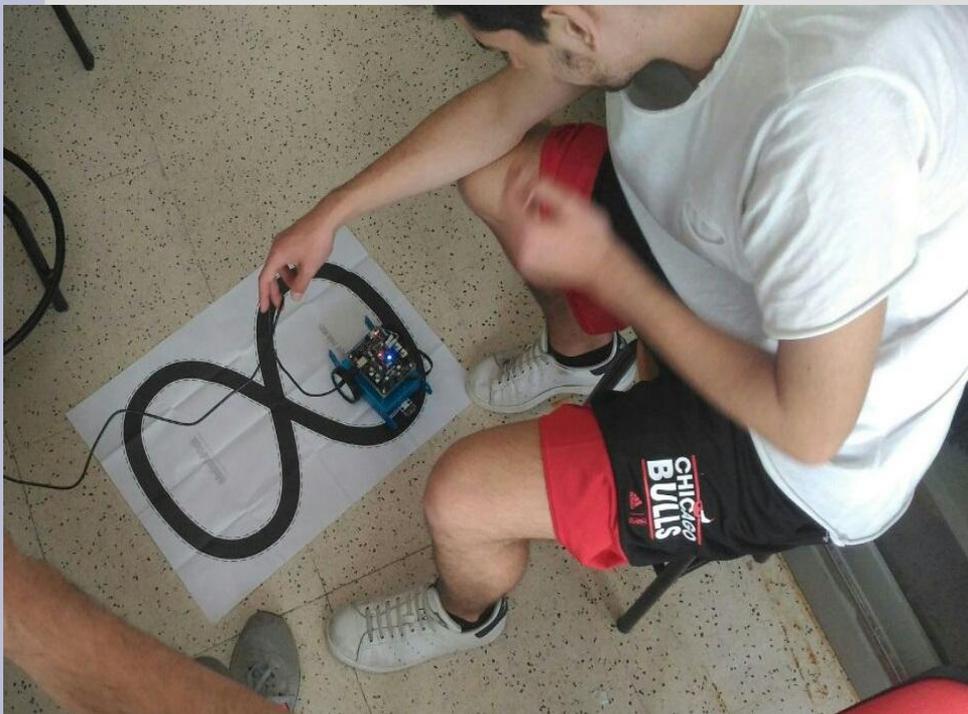
Montaggio

40 fissatori a pressione
con 4 viti autobloccanti
ciascuna per un totale di
160 viti.



Montaggio

Percorso di nastro
isolante nero di 5 cm



Risultato finale



Montaggio

Fanno parte del percorso anche 6 parallelepipedi dalle misure 31 x 30 x 22.5.

All'interno vengono posizionati i led e gli altoparlanti.

