**Program Listing for “Programming with Sensors”**

1. **Program to measure distances using while loop**

**import** lejos.hardware.Button;

**import** lejos.hardware.Sound;

**import** lejos.hardware.sensor.EV3UltrasonicSensor;

**import** lejos.robotics.SampleProvider;

**public** **class** SensorTester

{

 // Fields

 **public** **static** EV3UltrasonicSensor *distanceSensor* =

 **new** EV3UltrasonicSensor(SensorPort.***S1***);

 **public** **static** SampleProvider *distanceProvider* =

 *distanceSensor*.getDistanceMode();

 **public** **static** **float**[] *data* = **new** **float**[*distanceProvider*.sampleSize()];

 // Methods

 **public** **static** **double** getDistance()

 {

 *distanceProvider*.fetchSample(*data*, 0);

 **return** *data*[0];

 }

 **public** **static** **void** main(String[] args)

 {

 **while** (Button.***ENTER***.isUp())

 {

 Sound.playTune((int)(1000\*getDistance());

 System.out.println(getDistance());

 }

 }

}

**Program to create “Avoider” robot.**

**import** lejos.hardware.Button;

**import** lejos.hardware.Sound;

**import** lejos.hardware.motor.EV3LargeRegulatedMotor;

**import** lejos.hardware.port.MotorPort;

**import** lejos.hardware.port.SensorPort;

**import** lejos.hardware.sensor.EV3UltrasonicSensor;

**import** lejos.robotics.SampleProvider;

**public** **class** SensorTester

{

 // Fields

 **public** **static** EV3LargeRegulatedMotor *leftMotor* =

 **new** EV3LargeRegulatedMotor(MotorPort.***A***);

 **public** **static** EV3LargeRegulatedMotor *rightMotor* =

 **new** EV3LargeRegulatedMotor(MotorPort.***D***);

 **public** **static** EV3UltrasonicSensor *distanceSensor* =

 **new** EV3UltrasonicSensor(SensorPort.***S1***);

 **public** **static** SampleProvider *distanceProvider* =

 *distanceSensor*.getDistanceMode();

 **public** **static** **float**[] *data* = **new** **float**[*distanceProvider*.sampleSize()];

 // Methods

 **public** **static** **double** getDistance()

 {

 *distanceProvider*.fetchSample(*data*, 0);

 **return** *data*[0];

 }

 **public** **static** **void** driveForward()

 {

 *leftMotor*.forward();

 *rightMotor*.forward();

 }

 **public** **static** **void** avoidObstacle()

 {

 **int** degrees = (**int**)(2.7\*90);

 *leftMotor*.rotate(degrees, **true**);

 *rightMotor*.rotate(-degrees);

 }

 **public** **static** **boolean** detectObstacle()

 {

 **if** (*getDistance*() < 0.1)

 {

 **return** **true**;

 }

 **else**

 {

 **return** **false**;

 }

 }

 **public** **static** **void** main(String[] args)

 {

 **while** (Button.***ENTER***.isUp())

 {

 *driveForward*();

 **if** (*detectObstacle*())

 {

 *avoidObstacle*();

 }

 }

 }

}