**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*();

}

}

}

}