

```
1 package com.example.mycompass
2
3 import android.hardware.Sensor
4 import android.hardware.SensorEvent
5 import android.hardware.SensorEventListener
6 import android.hardware.SensorManager
7 import android.os.Bundle
8 import android.widget.ImageView
9 import android.widget.TextView
10 import androidx.appcompat.app.AppCompatActivity
11
12
13 class MainActivity : AppCompatActivity(){
14
15     lateinit var imageView: ImageView
16     lateinit var textView: TextView
17
18     lateinit var sensorManager: SensorManager
19     lateinit var sensorAccelerometer: Sensor
20     lateinit var sensorMagneticField: Sensor
21
22     private var floatGravity = FloatArray(3)
23     private var floatGeoMagnetic = FloatArray(3)
24
25     private val floatOrientation = FloatArray(3)
26     private val floatRotationMatrix = FloatArray(9)
27
28     override fun onCreate(savedInstanceState: Bundle?) {
29         super.onCreate(savedInstanceState)
30         setContentView(R.layout.activity_main)
31
32         imageView = findViewById(R.id.imageView_compass)
33         textView = findViewById(R.id.textView_under)
34
35         sensorManager = getSystemService(SENSOR_SERVICE) as SensorManager
36         sensorAccelerometer = sensorManager.getDefaultSensor(Sensor.
TYPE_ACCELEROMETER)
37         sensorMagneticField = sensorManager.getDefaultSensor(Sensor.
TYPE_MAGNETIC_FIELD)
38
39         val sensorEventListenerAccelerometer: SensorEventListener = object :
SensorEventListener {
40             override fun onSensorChanged(event: SensorEvent) {
41                 floatGravity = event.values
42                 SensorManager.getRotationMatrix(
43                     floatRotationMatrix,
44                     null,
45                     floatGravity,
46                     floatGeoMagnetic
47                 )
48                 SensorManager.getOrientation(floatRotationMatrix, floatOrientation
)
49                 val degree = (-floatOrientation[0] * 180 / 3.14159).toFloat()
50
51                 imageView.setRotation(degree)
52                 textView.setText(degree.toString())
```

```
53     }
54
55     override fun onAccuracyChanged(sensor: Sensor, accuracy: Int) {}
56 }
57
58     val sensorEventListenerMagneticField: SensorEventListener = object :
SensorEventListener {
59         override fun onSensorChanged(event: SensorEvent) {
60             floatGeoMagnetic = event.values
61             SensorManager.getRotationMatrix(
62                 floatRotationMatrix,
63                 null,
64                 floatGravity,
65                 floatGeoMagnetic
66             )
67             SensorManager.getOrientation(floatRotationMatrix,
floatOrientation)
68             val degree = (-floatOrientation[0] * 180 / 3.14159).toFloat()
69             imageView.setRotation(degree)
70             textView.setText(degree.toString())
71         }
72     }
73     override fun onAccuracyChanged(sensor: Sensor, accuracy: Int) {}
74 }
75     sensorManager.registerListener(
76         sensorEventListenerAccelerometer,
77         sensorAccelerometer,
78         SensorManager.SENSOR_DELAY_NORMAL
79     )
80     sensorManager.registerListener(
81         sensorEventListenerMagneticField,
82         sensorMagneticField,
83         SensorManager.SENSOR_DELAY_NORMAL
84     )
85 }
86
87 }
88
89
```