

PROYECTO FINAL – SENSORES

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Sensor de Giroscopio

Modificación en Colors.xml

Dentro del código del archivo de Colors.xml se añadieron las siguientes líneas de comando para indicar los colores a utilizar.

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="purple_200">#FFBB86FC</color>
    <color name="purple_500">#FF6200EE</color>
    <color name="purple_700">#FF3700B3</color>
    <color name="teal_200">#FF03DAC5</color>
    <color name="teal_700">#FF018786</color>
    <color name="black">#FF000000</color>
    <color name="white">#FFFFFFFF</color>
    <color name="yellow">#FFD416</color>
</resources>
```

Código de MainActivity.java

```
package com.example.giroscopio;

import androidx.appcompat.app.AppCompatActivity;

import android.media.AudioManager;
import android.media.MediaPlayer;
import android.media.SoundPool;
import android.os.Bundle;

import android.content.pm.ActivityInfo;
import android.hardware.Sensor;
import android.hardware.SensorEvent;
import android.hardware.SensorEventListener;
import android.hardware.SensorManager;
import android.content.Context;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    TextView textX, textY, textZ;
    SensorManager sensorManager;
    Sensor sensor;
    SoundPool sp;
    int sonido;
```

```

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    sensorManager = (SensorManager)
getSystemService(Context.SENSOR_SERVICE);
    sensor = sensorManager.getDefaultSensor(Sensor.TYPE_GYROSCOPE);

    textX = findViewById(R.id.textX);
    textY = findViewById(R.id.textY);
    textZ = findViewById(R.id.textZ);

    setRequestedOrientation(ActivityInfo.SCREEN_ORIENTATION_PORTRAIT);

    sp = new SoundPool(1, AudioManager.STREAM_MUSIC,1);

    sonido = sp.load(this, R.raw.click,1);

}

public void onResume() {
    super.onResume();
    sensorManager.registerListener(gyroListener, sensor,
SensorManager.SENSOR_DELAY_NORMAL);
}

public void onStop() {
    super.onStop();
    sensorManager.unregisterListener(gyroListener);
}

//MediaPlayer mp = MediaPlayer.create(this,R.raw.sword);

public SensorEventListener gyroListener = new SensorEventListener() {
    public void onAccuracyChanged(Sensor sensor, int acc) {
    }

    public void onSensorChanged(SensorEvent event) {
        float x = event.values[0];
        float y = event.values[1];
        float z = event.values[2];

        if(event.values[2] > 0.5f) { // anticlockwise
getWindow().getDecorView().setBackgroundColor(getResources().getColor(R.color
.purple_500));
            sp.play(sonido,1,1,1,0,0);
            //mp.start();
        }
        else if(event.values[2] < -0.5f) { // clockwise
getWindow().getDecorView().setBackgroundColor(getResources().getColor(R.color
.yellow));
        }
    }
}

```

```

        textX.setText("X : " + (int) x + " rad/s");
        textY.setText("Y : " + (int) y + " rad/s");
        textZ.setText("Z : " + (int) z + " rad/s");
    }
};
}

```

Código de activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/coordinatorLayout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"

    tools:context="MainActivity">

    <TextView
        android:id="@+id/textX"
        android:layout_width="157dp"
        android:layout_height="58dp"
        android:text=""
        android:textColor="#131212"
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.614"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.313"
        tools:ignore="MissingConstraints" />

    <TextView
        android:id="@+id/textX2"
        android:layout_width="230dp"
        android:layout_height="36dp"
        android:text="Valores de los Ejes"
        android:textAlignment="center"
        android:textColor="#131212"
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.152"
        tools:ignore="MissingConstraints" />

    <TextView
        android:id="@+id/textY"

```

```
        android:layout_width="159dp"
        android:layout_height="63dp"
        android:text=""
        android:textColor="#131212"
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.619"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.514"
        tools:ignore="MissingConstraints" />

    <TextView
        android:id="@+id/textZ"
        android:layout_width="162dp"
        android:layout_height="66dp"
        android:text=""
        android:textColor="#131212"
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.634"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.723"
        tools:ignore="MissingConstraints" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

Funcionamiento de la aplicación

6:14

57%

Giroscopio

Valores de los Ejes

X : 2 rad/s

Y : -1 rad/s

Z : 0 rad/s

Giroscopio

Valores de los Ejes

X : 1 rad/s

Y : 0 rad/s

Z : 0 rad/s