МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ

Федерально автономное образовательное учреждение высшего образования

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09.03.02 Информационные системы и технологии (уровень бакалавриата)

ОТЧЕТ

по лабораторной работе №3

по дисциплине «Мобильные ИТ»

на тему «Исследование датчиков в ОС Android»

Отметка о зачете \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_

(дата)

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1. ЦЕЛЬ РАБОТЫ

Исследование процесса разработки практического мобильного приложения с использованием датчика ориентации.

1. ИСХОДНЫЙ КОД

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| |  |  | | --- | --- | | 1 | package ru.justnero.sevsu.s3.mit.e3; | | 2 |  | | 3 | import *android.hardware.Sensor*; | | 4 | import *android.hardware.SensorEvent*; | | 5 | import *android.hardware.SensorEventListener*; | | 6 | import *android.hardware.SensorManager*; | | 7 | import *android.support.v7.app.AppCompatActivity*; | | 8 | import *android.os.Bundle*; | | 9 | import *android.widget.TextView*; | | 10 |  | | 11 | public class MainActivity extends *AppCompatActivity* implements *SensorEventListener* { | | 12 |  | | 13 | *TextView* acelX; | | 14 | *TextView* acelY; | | 15 | *TextView* acelZ; | | 16 | private static final *int* SHAKE\_SENSITIVITY = 3; | | 17 | private *int* shakeCounter = 0; | | 18 | private *int* xShake = 0; | | 19 | private *int* yShake = 0; | | 20 | private *int* zShake = 0; | | 21 | *float* x = 0; | | 22 | *float* y = 0; | | 23 | *float* z = 0; | | 24 | *float* xPrevious = 0; | | 25 | *float* yPrevious = 0; | | 26 | *float* zPrevious = 0; | | 27 |  | | 28 | private *float* acceleration = *SensorManager*.GRAVITY\_EARTH; | | 29 |  | | 30 | *@Override* | | 31 | protected *void* onCreate(*Bundle* *savedInstanceState*) { | | 32 | super.onCreate(savedInstanceState); | | 33 | setContentView(*R*.layout.activity\_main); | | 34 | acelX = (*TextView*) findViewById(*R*.id.acelX); | | 35 | acelY = (*TextView*) findViewById(*R*.id.acelY); | | 36 | acelZ = (*TextView*) findViewById(*R*.id.acelZ); | | 37 | *SensorManager* sensorManager = (*SensorManager*) getSystemService(SENSOR\_SERVICE); | | 38 | *Sensor* mSensor = sensorManager.getDefaultSensor(*Sensor*.TYPE\_ACCELEROMETER); | | 39 | sensorManager.registerListener(this, mSensor, *SensorManager*.SENSOR\_DELAY\_NORMAL); | | 40 | } | | 41 |  | | 42 | *@Override* | | 43 | public *void* onSensorChanged(*SensorEvent* *event*) { | | 44 | xPrevious = x; yPrevious = y; zPrevious = z; | | 45 | x = event.values[0]; y = event.values[1]; z = event.values[2]; | | 46 | *float* accelerationPrevious = acceleration; | | 47 | acceleration = (*float*) *Math*.sqrt((*double*) (x \* x + y \* y + z \* z)); | | 48 | if (acceleration - accelerationPrevious > SHAKE\_SENSITIVITY) { | | 49 | final *int* moveDec = 3; | | 50 | if (*Math*.abs(xPrevious - x) > moveDec && *Math*.abs(yPrevious - y) < moveDec && *Math*.abs(zPrevious - z) < moveDec) { | | 51 | ++xShake; | | 52 | } | | 53 | if (*Math*.abs(xPrevious - x) < moveDec && *Math*.abs(yPrevious - y) > moveDec && *Math*.abs(zPrevious - z) < moveDec) { | | 54 | ++yShake; | | 55 | } | | 56 | if (*Math*.abs(xPrevious - x) < moveDec && *Math*.abs(yPrevious - y) < moveDec && *Math*.abs(zPrevious - z) > moveDec) { | | 57 | ++zShake; | | 58 | } | | 59 | } | | 60 |  | | 61 |  | | 62 | acelX.setText(*String*.format(getString(*R*.string.acceleration\_x), x, xShake)); | | 63 | acelY.setText(*String*.format(getString(*R*.string.acceleration\_y), y, yShake)); | | 64 | acelZ.setText(*String*.format(getString(*R*.string.acceleration\_z), z, zShake)); | | 65 | } | | 66 |  | | 67 | *@Override* | | 68 | public *void* onAccuracyChanged(*Sensor* *sensor*, *int* *accuracy*) { | | 69 |  | | 70 | } | | 71 | } | |  |

ВЫВОДЫ

В ходе лабораторной работы были исследованы датчики ОС Andriod и разработано приложение с использованием датчика ориентации.