Accelerometer Sensor Example Using QtMobility Project

This code snippet shows how to use the Qt Mobilty QAccelerometer and Sensor APIs to get and display sensor data.

Preconditions

Read this for how to CS001615 - Setting up Qt Mobility

Project File (.pro file)

- Add the Qt Mobility project configuration option in the .Pro file as shown below

```
CONFIG += mobility
MOBILITY += sensors
```

- here is the full project(.pro) file.

```
QT       += core gui

TARGET = QtAccelerometer
TEMPLATE = app


SOURCES += main.cpp\
        accelerometer.cpp

HEADERS  += accelerometer.h

CONFIG += mobility
CONFIG += debug
MOBILITY = sensors

symbian {
    TARGET.UID3 = 0xe239264e
    # TARGET.CAPABILITY +=
    TARGET.EPOCSTACKSIZE = 0x14000
    TARGET.EPOCHEAPSIZE = 0x020000 0x800000
}
```

Header

Here is the accelerometer.h header file.

```
#include <QtGui/QMainWindow>
#include <QGraphicsView>
#include <QBasicTimer>
#include <QTimer>
#include <QAccelerometer> // Add Sensor Class

// add Qt Mobility Project Namespace
QTM_USE_NAMESPACE

class QGraphicsRectItem;
class QGraphicsSimpleTextItem;


class Accelerometer : public QGraphicsView
{
    Q_OBJECT

public:
    Accelerometer(QWidget *parent = 0);

protected:
    bool event(QEvent *event);

private:
    void updateXYZPosition();

private:
    QGraphicsRectItem *Rect;
    QGraphicsSimpleTextItem *text;
    QAccelerometer *accelerometerSensor;
    QBasicTimer Timer;
    QTimer inactiveTimer;
};
```

Source

```
#include "accelerometer.h"
```


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```
#include <QGraphicsRectItem>
#include <QGraphicsSimpleTextItem>
#include <QResizeEvent>
#include <QTimerEvent> // timer event
#include <QDebug>

Accelerometer::Accelerometer(QWidget *parent) : QGraphicsView(parent), Rect(0), text(0), accelerometerSensor(0)
{
    QGraphicsScene *scene = new QGraphicsScene(this);
    setScene(scene);

    Rect = new QGraphicsRectItem();

    text = new QGraphicsSimpleTextItem(Rect);
    text->setBrush(Qt::gray);
    scene->addItem(Rect);

    accelerometerSensor = new QAccelerometer(this);
    inactiveTimer.setSingleShot(true);

    if (!Timer.isActive())
        Timer.start(20, this);

    // start the sensor
    if (!accelerometerSensor->isActive())
        accelerometerSensor->start();

    if (!accelerometerSensor->isActive())
    {
        qDebug() << "accelerometer sensor didn't start!" << endl;
    }

    setHorizontalScrollBarPolicy(Qt::ScrollBarAlwaysOff);
    setVerticalScrollBarPolicy(Qt::ScrollBarAlwaysOff);
}

bool Accelerometer::event(QEvent *event)
{
    switch (event->type()) {
    case QEvent::Timer:
        if (static_cast<QTimerEvent*>(event)->timerId() == Timer.timerId())
            updateXYZPosition(); // update the xyz position
        break;
    default:
        break;
    }
    return QGraphicsView::event(event);
}

void Accelerometer::updateXYZPosition()
{
    QAccelerometerReading *reading = accelerometerSensor->reading();
    qreal xacceleration = 0.0f;
    qreal yacceleration = 0.0f;
    qreal zacceleration = 0.0f;
    if (reading) {
        xacceleration = reading->x();
        yacceleration = reading->y();
        zacceleration = reading->z();

        // for debug purpose
        qDebug()  << "xacceleration x" << endl;
        qDebug()  << xacceleration << endl;

        qDebug()  << "yacceleration y" << endl;
        qDebug()  << yacceleration << endl;

        qDebug()  << "zacceleration z" << endl;
        qDebug()  << zacceleration << endl;

        // set the text and display it on the screen
        QLocale c(QLocale::C);
        text->setText("x:  " + c.toString(xacceleration) + " y:  " + c.toString(yacceleration) + " z:  " + c.toString(zacceleration)

     }
}
```

Postconditions

Here is the QtAccelerometer Application's Screenshot. You can change the Accelerometer Sensor data from Qt Simulator.

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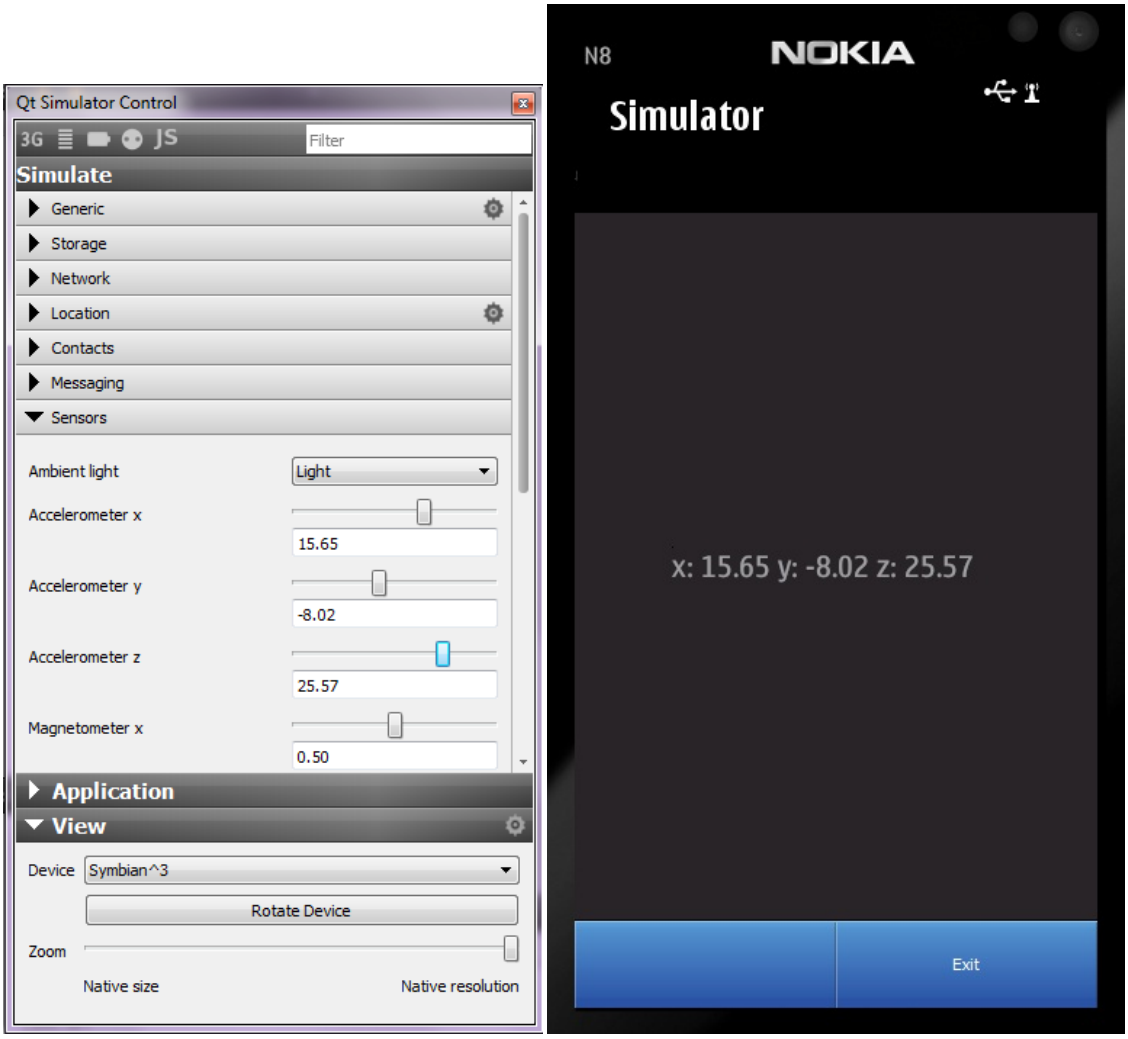

Example Applications

Example application can be found on the following link File:QtAccelerometer QtMobility.zip.

Related Articles

- QtMagnetometer Sensor Example Using QtMobility Project
- Turning phone into magnetic compass using Qt mobility project
- Compass Sensor Example Using QtMobility Project

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