QtMagnetometer Sensor Example Using QtMobility Project

This code snippet shows how to use Qt Mobilty's QMagnetometer sensor.

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 = QtMagnetometer
TEMPLATE = app


SOURCES += main.cpp\
        magnetometer.cpp

HEADERS  += magnetometer.h

CONFIG += mobility
CONFIG += debug
MOBILITY = sensors

symbian {
    TARGET.UID3 = 0xe26021e7
    # TARGET.CAPABILITY +=
    TARGET.EPOCSTACKSIZE = 0x14000
    TARGET.EPOCHEAPSIZE = 0x020000 0x800000
}
```

Header

Here is the magnetometer.h header file.

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

// add Qt Mobility Project Namespace
QTM_USE_NAMESPACE

class QGraphicsRectItem;
class QGraphicsSimpleTextItem;


class Magnetometer : public QGraphicsView
{
    Q_OBJECT

public:
    Magnetometer(QWidget *parent = 0);

protected:
    bool event(QEvent *event);

private:
    void updateMagnetometerSensor();

private:
    QGraphicsRectItem *Rect;
    QGraphicsSimpleTextItem *text;
    QMagnetometer *MagnetometerSensor;
    QBasicTimer Timer;
    QTimer inactiveTimer;
};
```

Source

```
#include "magnetometer.h"
#include <QGraphicsRectItem>
#include <QGraphicsSimpleTextItem>
#include <QResizeEvent>
```


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```
// include timer event
#include <QTimerEvent>
#include <QDebug>

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

    Rect = new QGraphicsRectItem();

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

    MagnetometerSensor = new QMagnetometer(this);
    inactiveTimer.setSingleShot(true);

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

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

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

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

bool Magnetometer::event(QEvent *event)
{
    switch (event->type()) {
    case QEvent::Timer:
        if (static_cast<QTimerEvent*>(event)->timerId() == Timer.timerId())
            updateMagnetometerSensor(); // update the sensor data
        break;
    default:
        break;
    }
    return QGraphicsView::event(event);
}

void Magnetometer::updateMagnetometerSensor()
{
    QMagnetometerReading *reading = MagnetometerSensor->reading();
    qreal x = 0.0f;
    qreal y = 0.0f;
    qreal z = 0.0f;
    qreal calibrationLevel = 0.0f;
    if (reading) {
        x = reading->x();
        y = reading->y();
        z = reading->z();
        calibrationLevel = reading->calibrationLevel();

        // set the text and display it on the screen
        QLocale c(QLocale::C);
        text->setText("x: " + c.toString(x) + " y: " + c.toString(y) + " z: " + c.toString(z) + "\n\nMagnetometer Calibration Level:

c.toString(calibrationLevel));

     }
}
```

Postconditions

Here is the QtMagnetometer Application's Screenshot. You can change the Magnetometer Sensor data like X , Y , Z Direction and Calibration Level from Qt Simulator.

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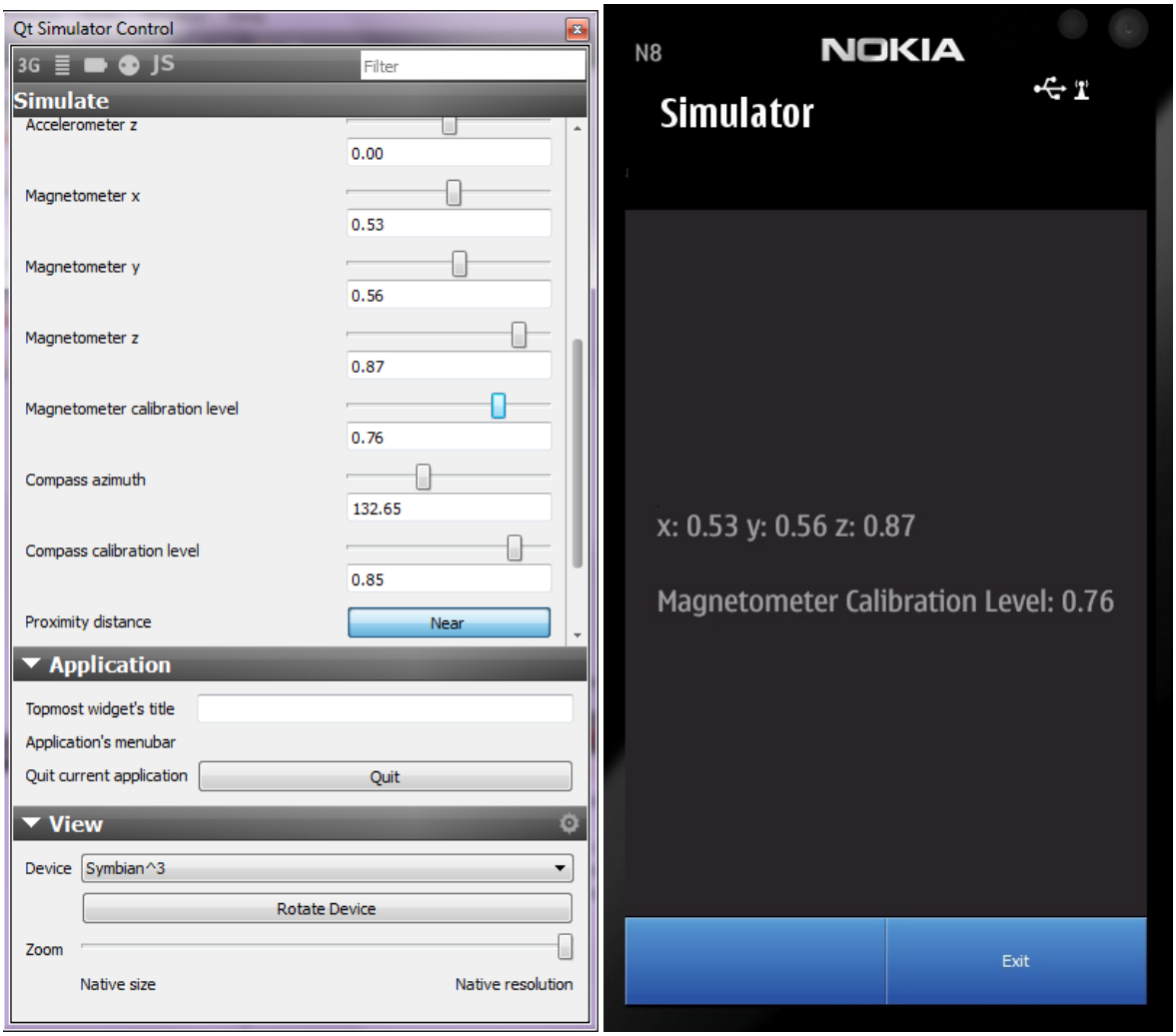

Example Applications

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

Related Articles

Turning phone into magnetic compass using Qt mobility project

Accelerometer Sensor Example Using QtMobility Project

Compass Sensor Example Using QtMobility Project

-- chintandave_er 05:40, 9 December 2010 (UTC)

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