Using the Qt Scene Graph from C++ with QSkinny

https://github.com/uwerat/qskinny

Who am I?

» working on Qt since 2008

» former QtNetwork maintainer

» @peha23 on Twitter

https://github.com/uwerat/qskinny

What is this talk about?

Using the Qt graphic stack from C++

https://github.com/uwerat/qskinny

Agenda

1. QML under the hood
2. The QML / C++ boundary
3. QSkinny
4. Outlook

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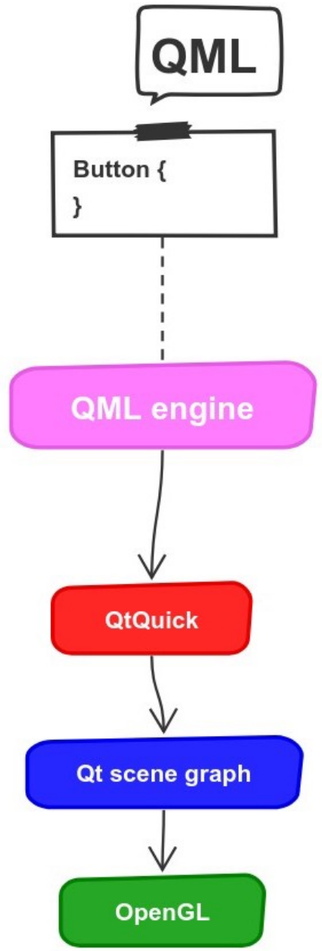
QML under the hood



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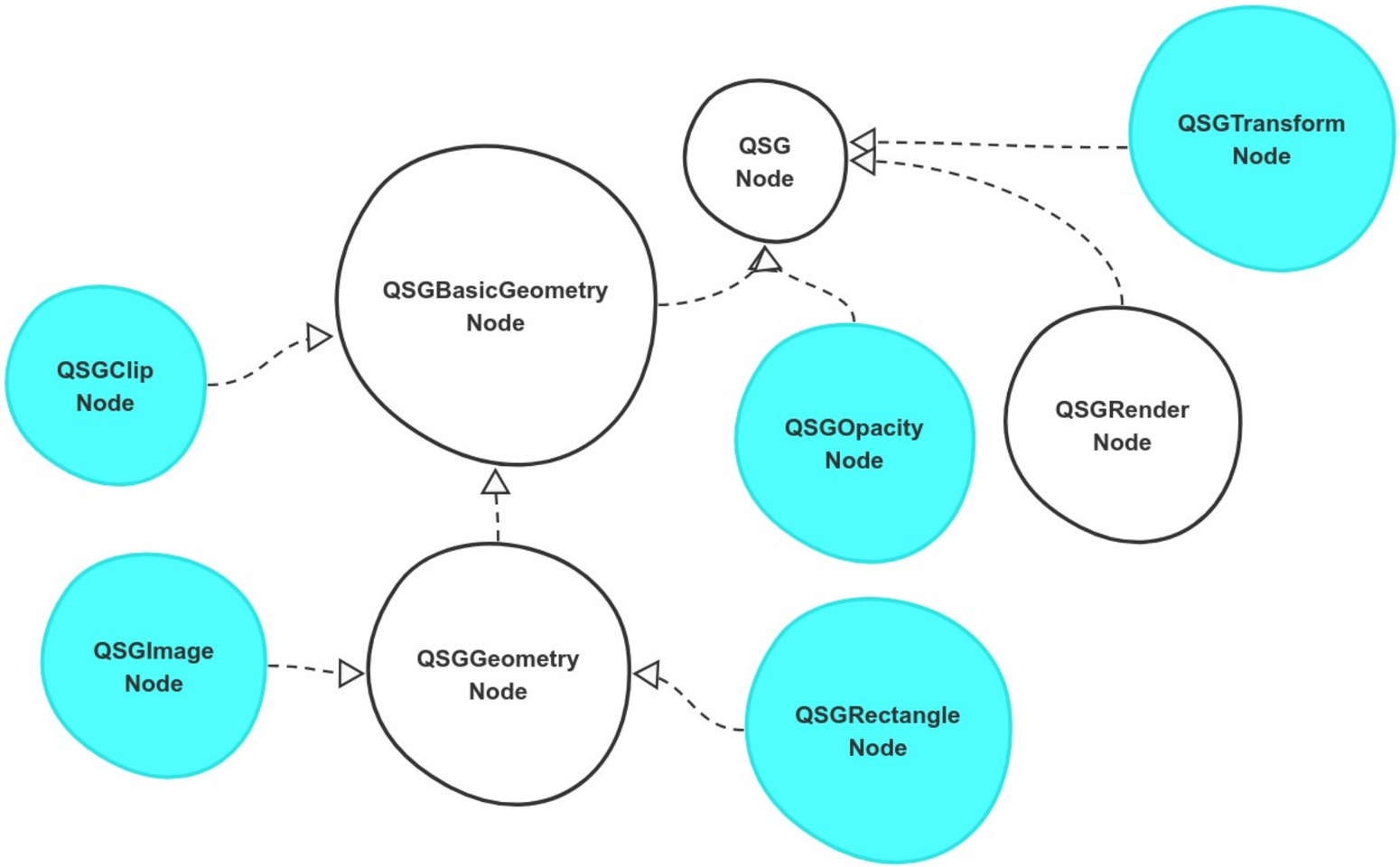
Types of scene graph nodes



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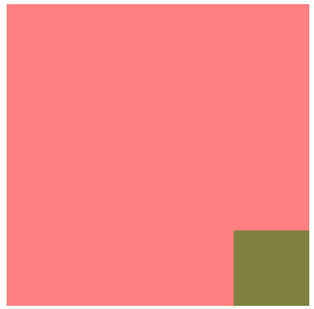
QML example

```
Rectangle {
    id: outterRectangle
    width: 200
    height: 200
    color: "red"
    opacity: 0.5

    Rectangle {
        id: innerRectangle
        width: 50
        height: 50
        clip: true
        anchors.bottom: parent.bottom
        anchors.right: parent.right
        color: "green"
    }
}
```



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QQuickRootItem — is a QQuickItem

QQuickRectangle — is a QQuickItem

```
qreal x = 0
qreal y = 0
qreal width = 200
qreal height = 200
qreal opacity = 0.5
```

QQuickRectangle — is a QQuickItem

```
qreal x = 150
qreal y = 150
qreal width = 50
qreal height = 50
```

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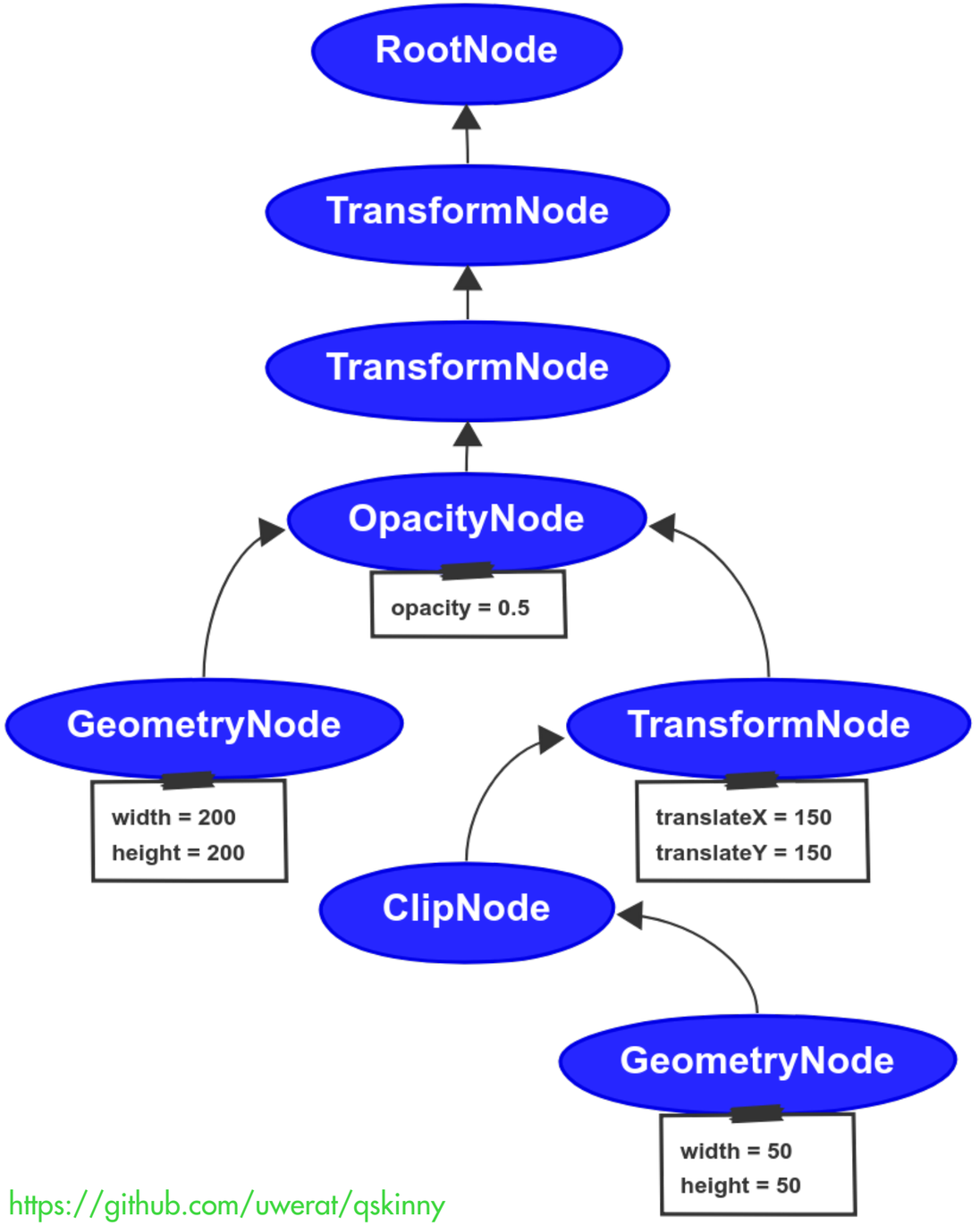

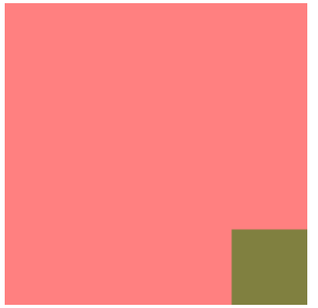

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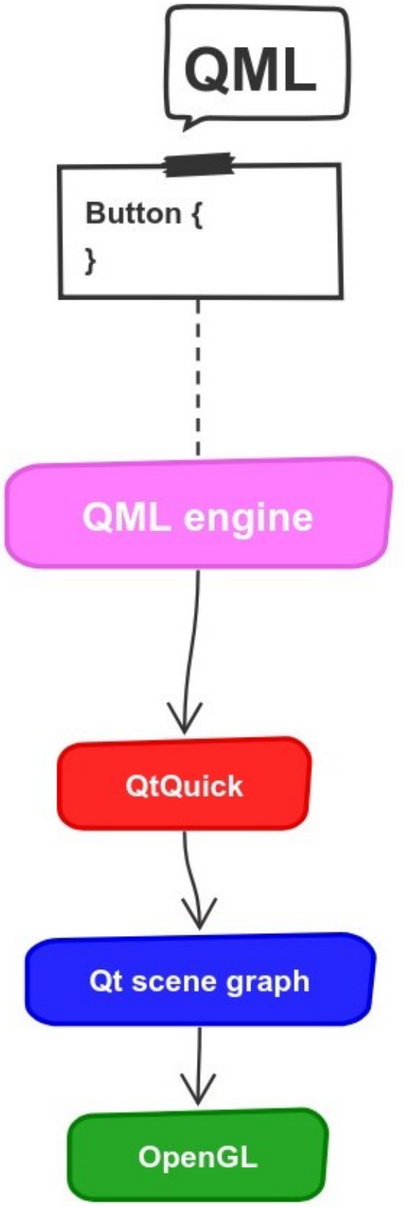

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QtQuickControls 1

Write everything in QML

```
Control {
    id: slider
    (...)
    style: Settings.styleComponent(Settings.style, "SliderStyle.qml", slider)
    property Component tickmarks: Repeater {
    Rectangle {
        color: "#777"
        width: 1
        height: 3
        y: (...)
        x: (...)
        }
    }
}
```

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QtQuickControls 2

some parts QML, some C++

qquickslider_p.h:

```
class Q_QUICKTEMPLATES2_PRIVATE_EXPORT QQuickSlider : public QQuickControl
{
    Q_OBJECT
    Q_PROPERTY(qreal from READ from WRITE setFrom NOTIFY fromChanged FINAL)
    Q_PROPERTY(qreal to READ to WRITE setTo NOTIFY toChanged FINAL)
    (...)
};
```

Slider.qml:

```
T.Slider {
    id: control
}
```

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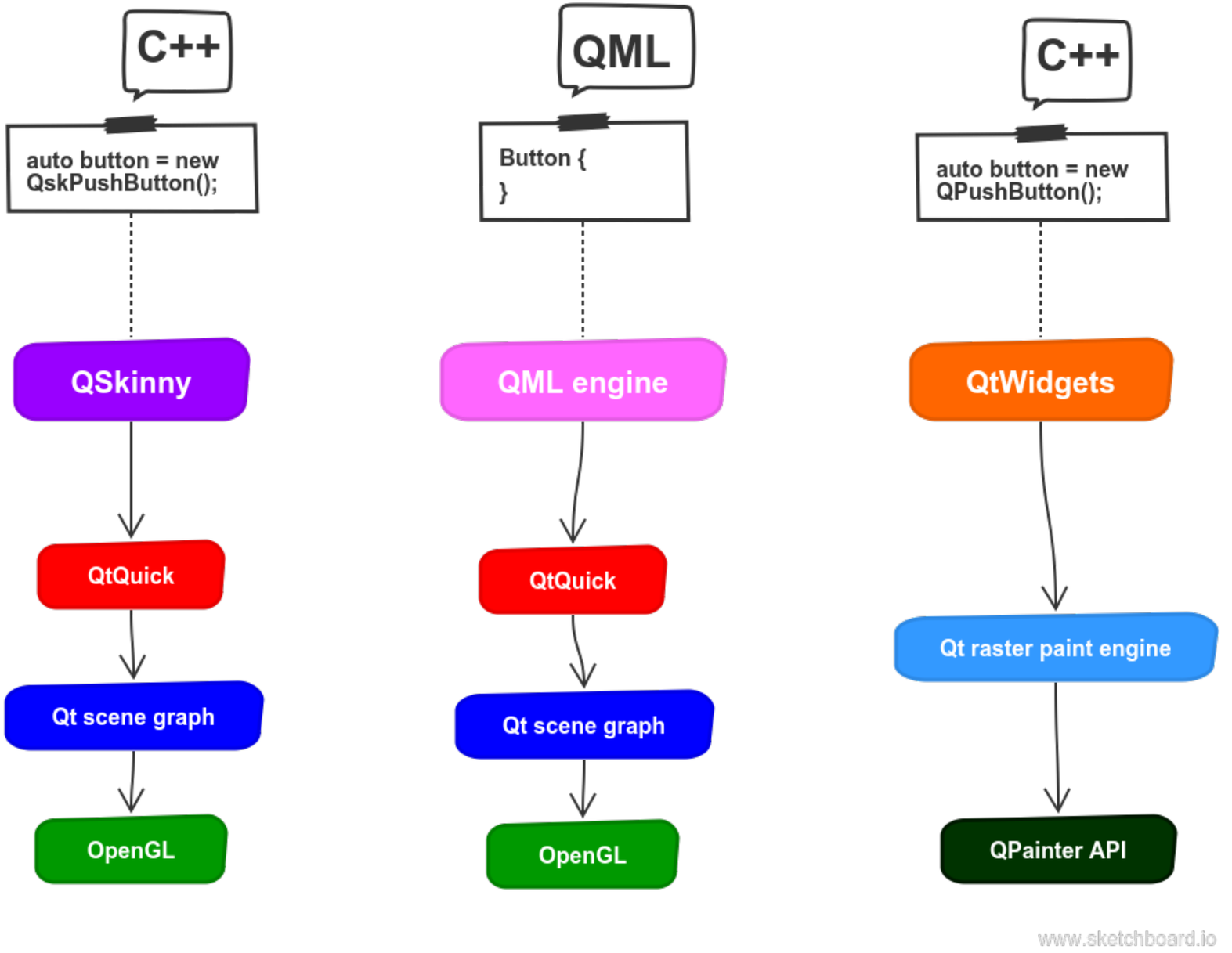

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QSkinny design goals

» lightweight

» flexible theming

» dynamic sizing

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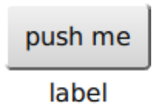
QSkinny API

```
QskWindow window;
auto box = new QskLinearBox(Qt::Vertical);
auto button = new QskPushButton("push me", box);
auto label = new QskTextLabel("label", box);
window.addItem(box);
window.show();
```



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separation of content and style

(here diagram of skinlet etc.)

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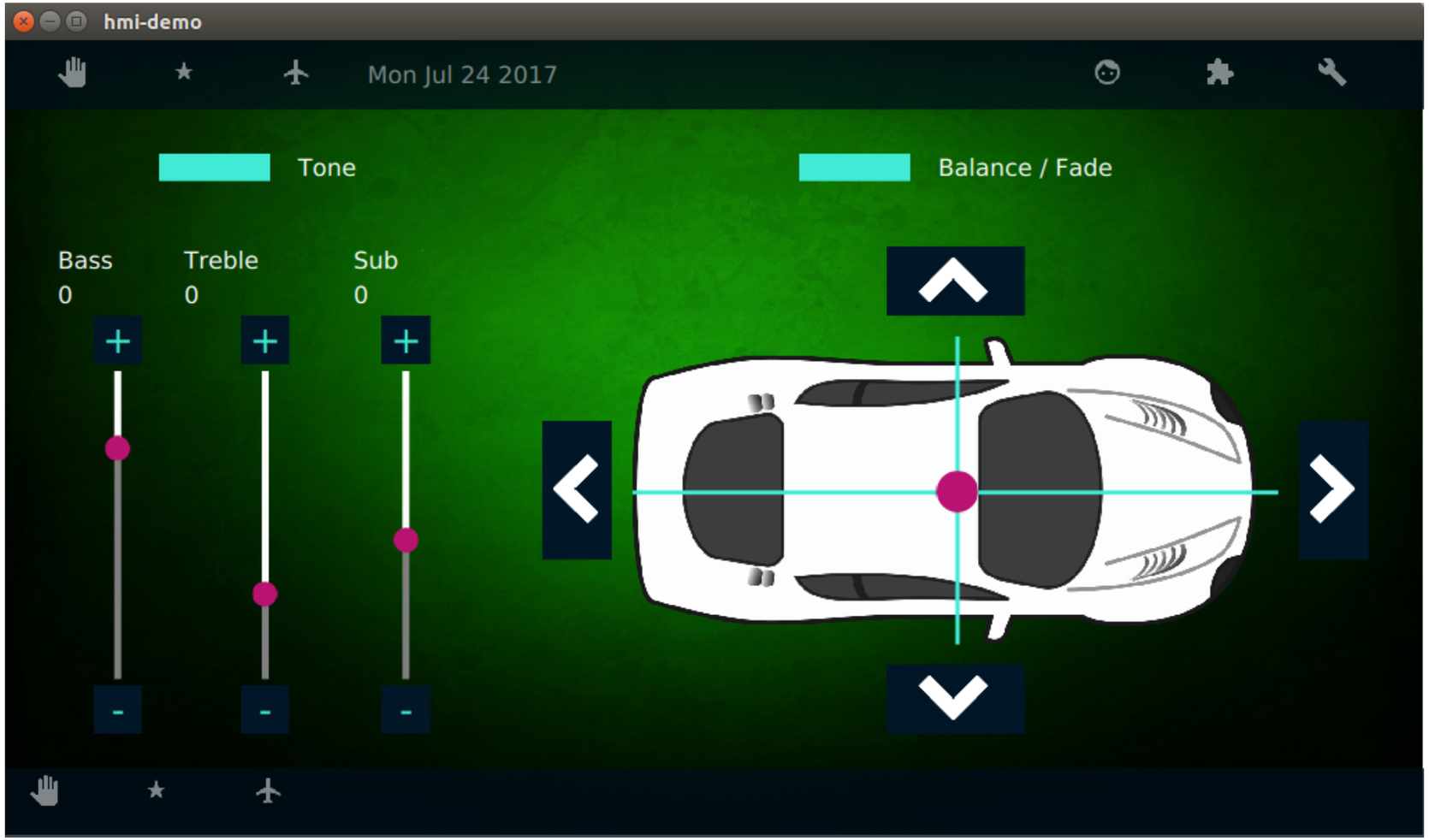
example



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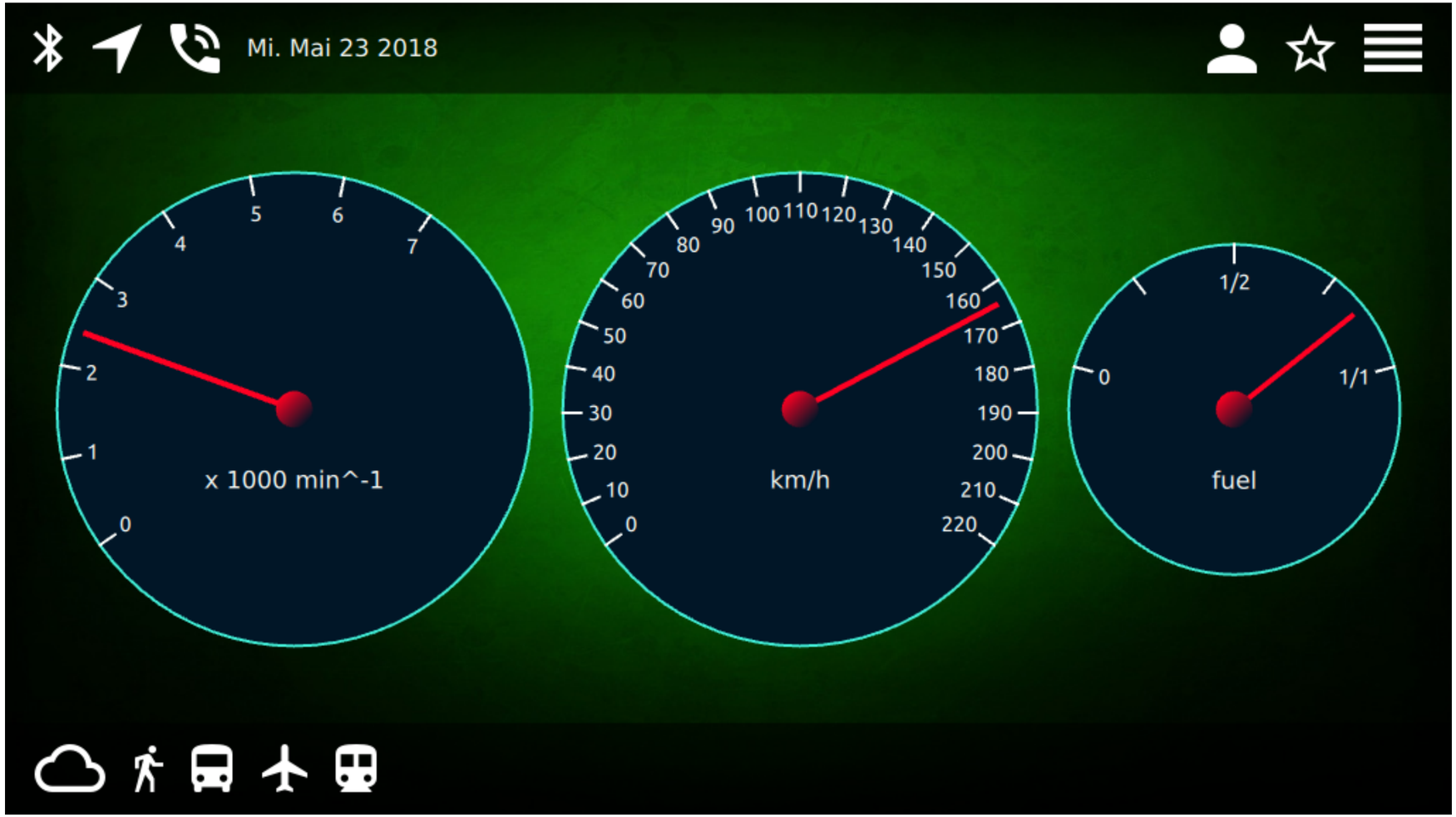
example



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Outlook

QSkinny

polishing / documentation

Qt 6

(maybe) new styling / opening up QtQuickControls 2?

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Discussion

@peha23 on Twitter

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