Media player pro 2000

Project members:

Tomi Panula,

Kyösti Alkio,

Jussi Impiö,

Juhana Autti

Overview

What it can do:

- Open and play media files.
    - Support for both sound and video files
    - Video files can be played in fullscreen mode
- Media controls:
    - play/pause button
    - seek slider
    - volume slider
    - Mute button
- Support for drag & drop from external sources
- Display metadata
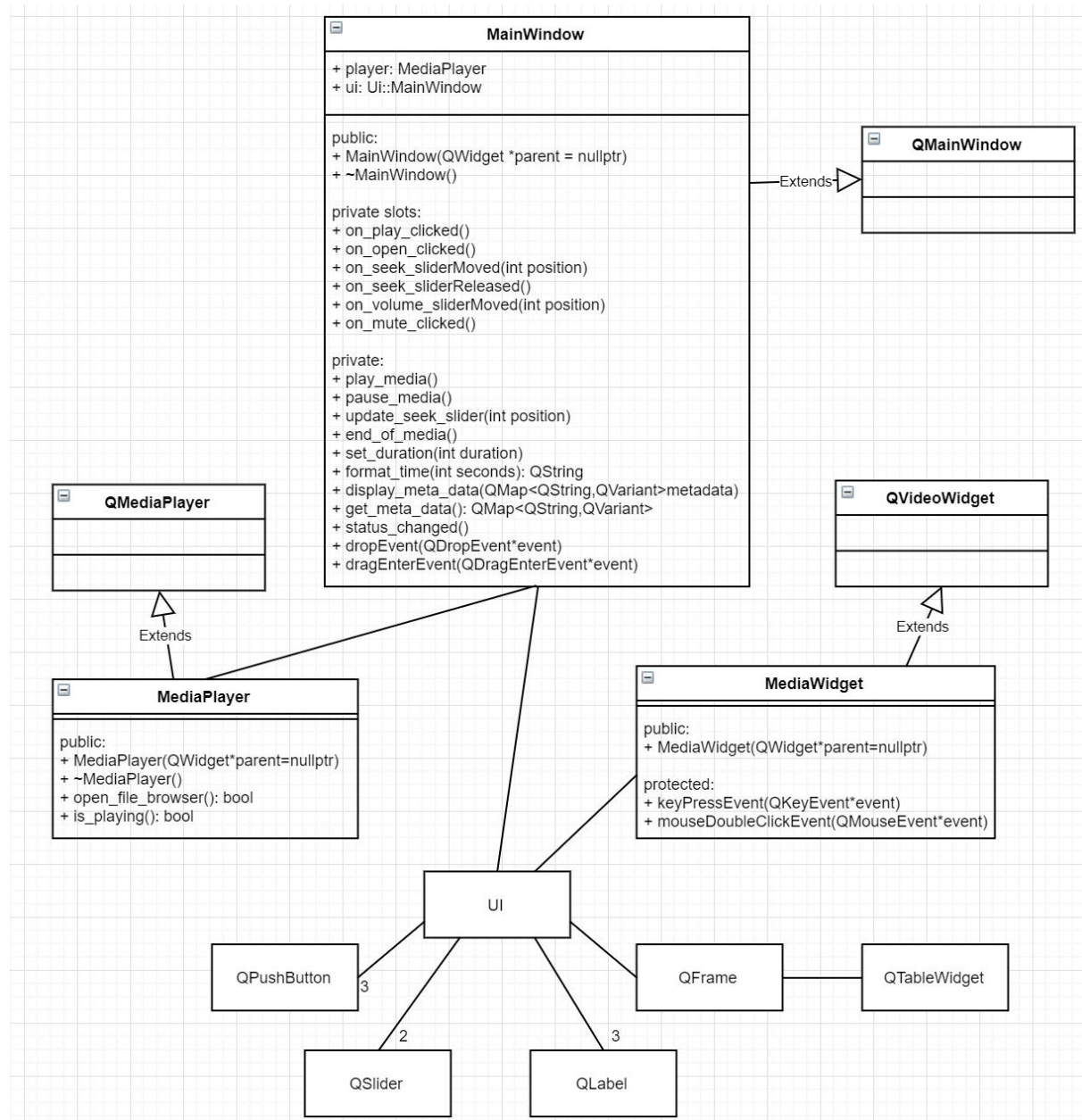- Display position and duration of media

What it can't do:

- Open multiple files at the same time
- Create playlists or media queues
- Bring peace to the world

Software structure

The media player's structure is pretty simple since we have used a lot of Qt's library methods. We have MainWindow class which extends QMainWindow and where all the magic happens. We have also extended QMediaPlayer with MediaPlayer class and

QVideoWidget with MediaWidget class. The MediaPlayer class represents our media player which plays the media files. We have used Qt's UI elements like QPushButton and QSlider in our UI. Here is a UML class diagram of the media player:

Instructions for building

Media Player Pro 2000 works at least with Qt 5.11+. The recommended way to build and run this project is to use QtCreator. Then simply importing the project should suffice. However, if you are not using QtCreator to build, the following qmake calls can be used instead.

Release:
```
qmake src/MediaPlayer/MediaPlayer.pro -spec linux-g++
CONFIG+=qtquickcompiler
```

Debug:
```
qmake src/MediaPlayer/MediaPlayer.pro -spec linux-g++
CONFIG+=debug CONFIG+=qml_debug
```

These will create a Makefile for you which can be run to compile the project.

You can also use build.sh which is found in `src/build/`

The program most likely won't work unless you do the following installs (replace apt with whatever is your package manager)

Playing audio and video files require these to be installed. (the project won't compile without these)

```
sudo apt-get install libgl1-mesa-dev libpulse-dev
```

You might also need these depending on how you installed Qt:

```
sudo apt-get install qtmultimedia5-dev libqt5multimediawidgets5
libqt5multimedia5-plugins libqt5multimedia5
```

Troubleshooting

If you get errors such as "`No decoder available for type 'video/x-h264`" or "`your gstreamer installation is missing a plug-in.`", you need to install gstreamer. These errors cause black screen when playing videos.

Fix 1:
```
sudo apt-get install gstreamer1.0-plugins-good
gstreamer1.0-plugins-ugly gstreamer1.0-plugins-bad
```

Fix 2:
```
sudo apt-get install ubuntu-restricted-extras
```
You can also try to add `-r GST_VERSION=1.0` parameter to qmake call.

For windows, you will need to install this codec to play videos:
`K-Lite_Codec_Pack_1375_Basic.exe`

Instructions for using Media Player Pro 2000

The software is simple to use: you can either drag and drop a media file to the player, or use the 'Open' -button to open a media file. The media file start playing automatically, and the play/pause button can be used to pause or play the media. The mute button can be used to mute. Seek slider can be used to seek the media by dragging the slider and drag it to some position on the slider.

When a media is loaded, the available metadata will appear on the top right frame.

If a video is loaded, the video widget can be double clicked to enter full screen. However, returning from full screen leaves the video widget as a separate window so it is not recommended to use full screen. Instead, the window can be scaled by dragging a corner.

Testing

The project is tested manually by using the software. The project does not have any unit or integration tests. Our plan was to unit tests, but we weren't able to get them working. Some of the work regarding them can be found in tests branch.

Work Log

Tomi: Added basic controls(play/pause, seek slider, volume control), drag & drop support, overall code quality fixes, loading of media file, worked on UI/UX, UML diagrams in documents

Kyösti: Tried to implement fft (though it was decided that it would be dropped from the scope of this project), worked on UI/UX, added video support, worked on install/build instructions, small QoL fixes

Juhana: Implemented all metadata related features; Obtaining all of the file's available metadata and displaying it in the UI and automatic updating for the visible filename when playing media.

Jussi: Worked on unit tests and added some features

Week 45: Created project plan

Week 46: Studying Qt and prototyping

Week 47: FFT prototyping, did not end up in the project

Week 48: Created the first version of the player which had the basic features done (basic UI, play/pause, load etc).

Week 49: Improved controls, added video support, added drag & drop support

Week 50: Added metadata and quality of life improvements, improved UI, modified architecture, added tests, added space to play functionality, overall UX fixes