

Musical Engineering in JamMo

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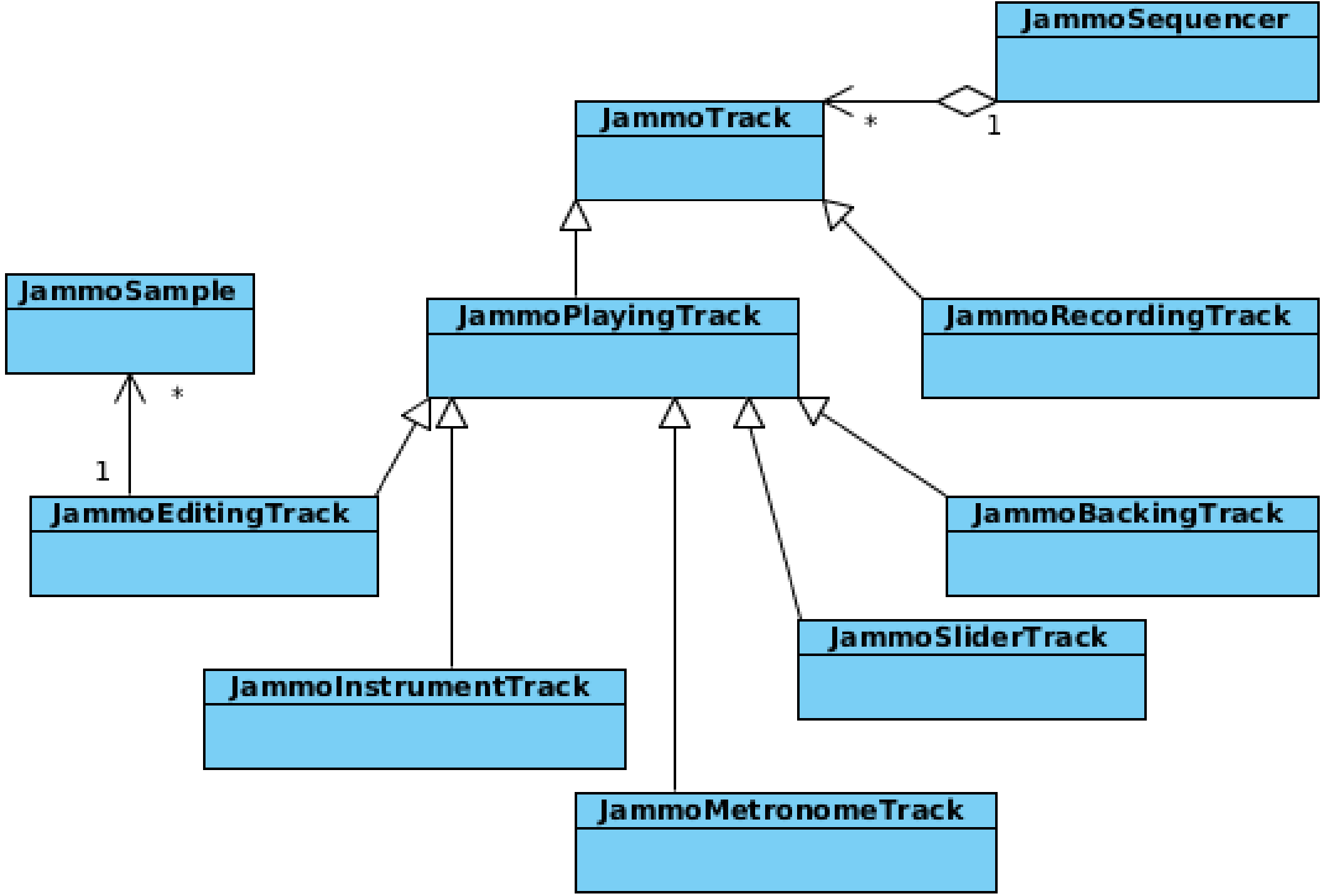
Introduction

- UMSIC
 - Multidisciplinary, transnational S & T project
 - Measuring and increasing social inclusion of children by musical collaboration
- Jamming Mobile (JamMo)
 - Musical software for children aged 3 to 12
 - Nokia N900 & Maemo
- What is the most suitable way to implement a sequencer framework based on existing libraries in mobile environment?

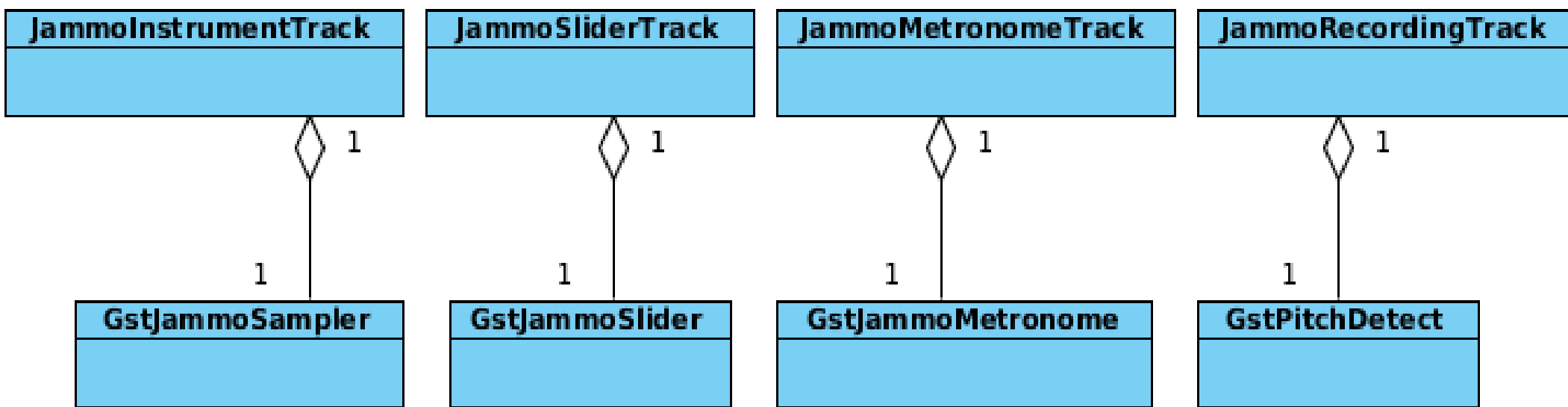
Musical Engineering Framework

- GStreamer API
 - Various required functionalities available as elements
- Need for new GStreamer elements
 - Virtual instruments
 - Metronome
 - Pitch detection
- GStreamer elements controlled with GObject classes

Architecture



Implemented GStreamer elements



Evaluation

- Simple and extendable architecture
 - Optimizations to GStreamer pipelines possible
 - Possible to replace GStreamer
- Hardware resources of N900 are limited
 - Many solutions have worked on a desktop computer but failed on N900
- Playback of 5 simultaneous wav tracks
 - Decoding ogg compression is processor intensive (only 2 simultaneous tracks)

Conclusion

- GStreamer is effective in programming
 - Common functionalities implemented and available
 - It is possible to implement new elements
- Platform was a constraint
 - Availability of audio libraries
 - Limited resources of N900