The University of Crete
Radio Station Project
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Who are we?
Why?
How?
The studio
Technical setup
Technology used
Under the hood
Audio mastering & encoding

➔ Calf Studio Gear
➔ IceStreamer
  ◆ GStreamer based replacement for Darkice

➔ FM & RDS encoding: JMPXRDS
  ◆ An SDR that generates the FM Multiplex (MPX) signal
  ◆ Streams the MPX with RTP (GStreamer) to remote odroid through its Hi-Fi shield (384KHz)

Audio recording

➔ Audio Coffin!
  ◆ Also acts as an audio logger
FM Transmission

→ Remote FM antenna on a mountain
→ Link with directional Wi-Fi antennas (Ubiquiti)
→ Odroid C1+ with Hi-Fi shield
  ◆ JMPXRDS RTP client
  ◆ Outputs FM MPX signal
→ Analog FM exciter & RF amplifier
Autopilot

→ Fill with music when there is no show
→ Automatic selection of songs and spots
  ◆ With certain rules
→ The “Zones” concept
  ◆ Time of the day => music kind
  ◆ Main & intermediate playlists
→ Meet audio-scheduler
An infrastructure based on WAMP (WebSocket) for transmission of playback metadata and relevant information from many sources to many clients.

- Uses crossbar.io
- Distributed in many machines (studio, NAS, mastering, mobile)
- Message sample:

```json
{
  "producerName": "autopilot",
  "slotTitle": "Playlist name",
  "slotDuration": "10:00-12:00",
  "slotAuxiliaryMessage": "A message about the playlist.",
  "slotDescription": "A pretty long description about the playlist.",
  "slotURL": "http://www.radio.uoc.gr/playlist_name.html",
  "imageUrl": "http://radio.uoc.gr/metadata/cover.jpg",
  "albumTitle": "Abbey Road",
  "songTitle": "Come Together",
  "songLength": "4:19",
  "artist": "The Beatles",
  "genre": "Rock",
  "year": "1969",
  "metadata_url": "https://musicbrainz.org/release/d6010be3-98f8-422c-a6c9-787e2e491e58"
}
```
Music library
Future ideas

- Desktop apps
  - For show production
  - For autopilot management
- Zones, shows and misc information in a database
- Website as a view of that database
  - Plus messaging system
- Web tool to allow people to contribute playlist ideas
- Digital studio
- Real-time declipper
Thank you!
Any questions?

http://radio.uoc.gr
https://github.com/UoC-Radio