WP5 – System Integration and Validation

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EARS Kick-off Meeting

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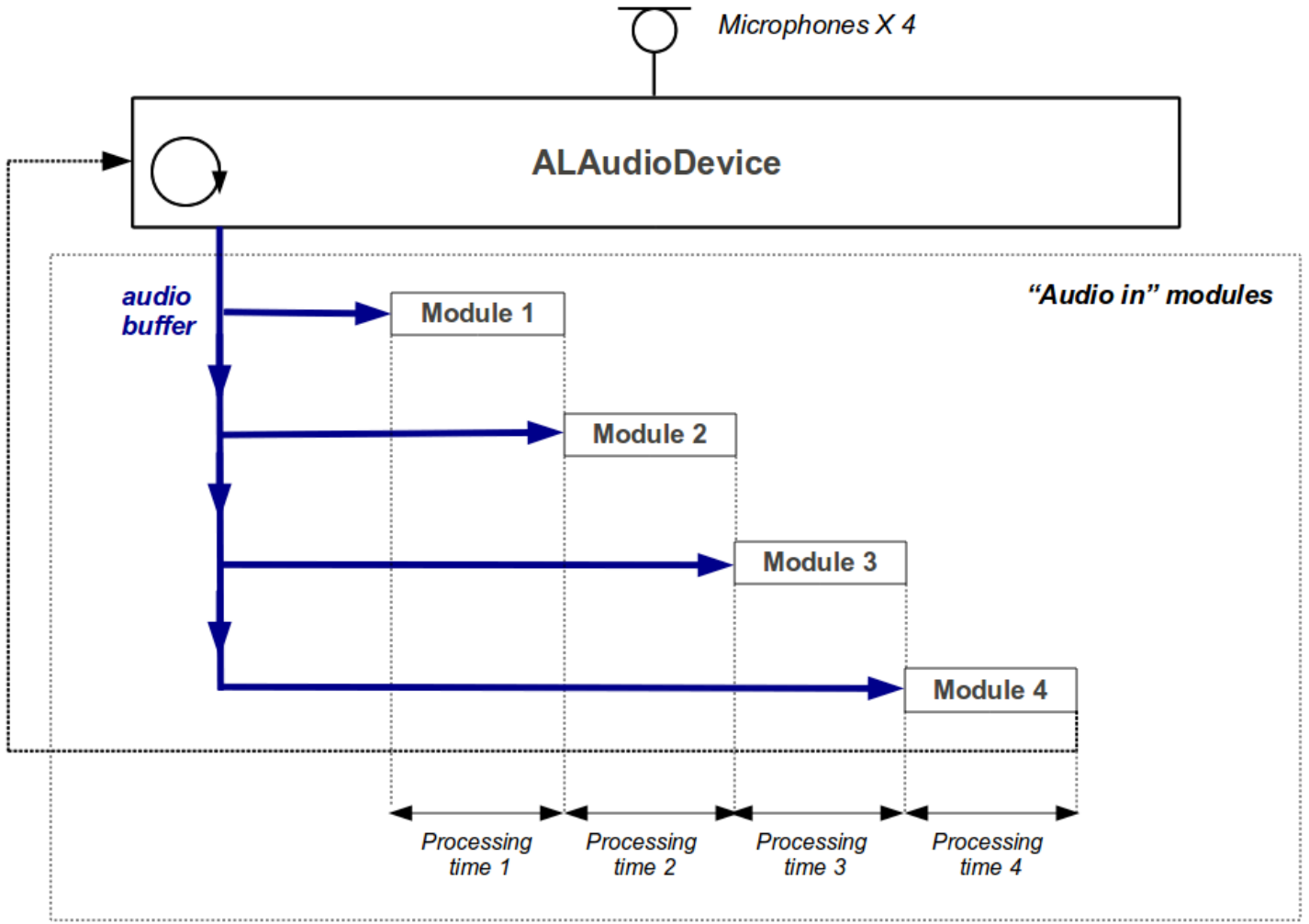
Overview

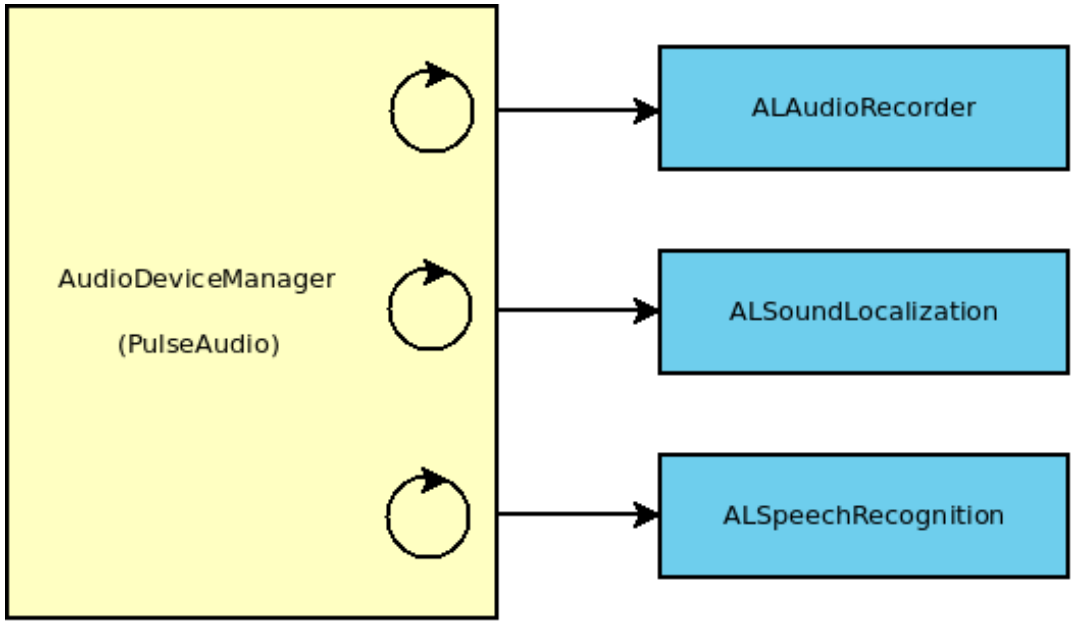
- Evaluate the efficiency of the development within an application
- Integration on Nao
  - First available functions (M24)
  - All the functions (M32)
- Development of the welcoming application
- 4 Tasks
  - Software architecture for audio integration - M1-M6 (ALD)
  - Integration of microphone arrays onto Nao – M13-M30 (ALD, BGU, FAU)
  - Software integration – M13-M30 (ALD & all)
  - Development of applications and evaluation – M1-M36 (ALD & all)

Previous architecture



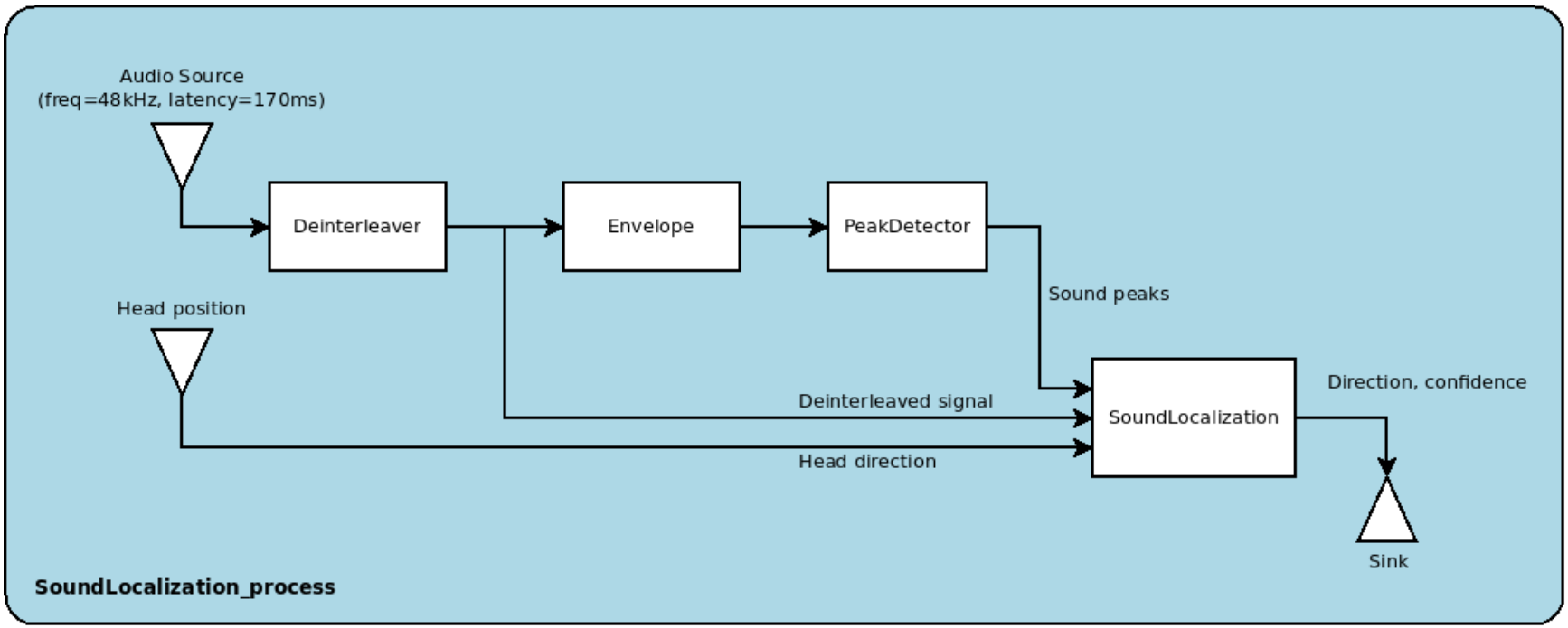
Current Architecture

- Using Pulse Audio
- Independant sources (difference latencies, // processing)
- Internal bufferpool (no more buffer loss !)
- Routable Input/output (network, bluetooth…)



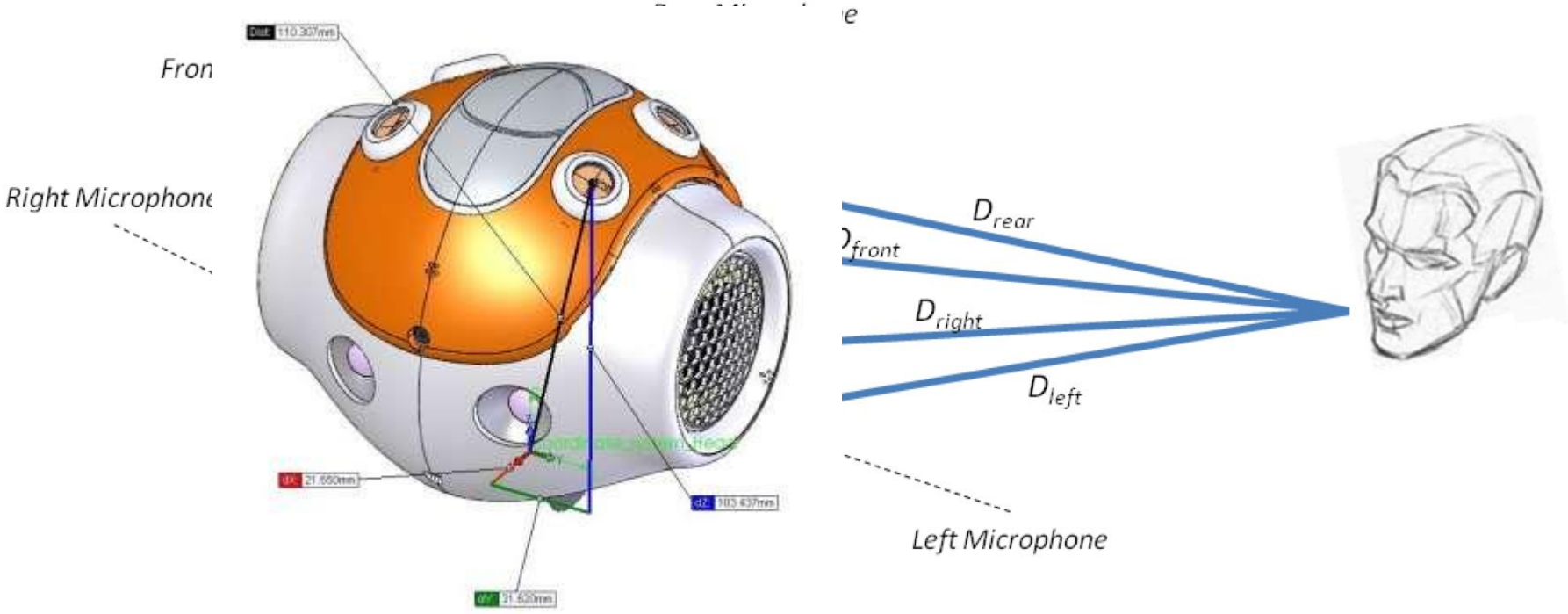
Coming processing framework : Modularity ©

- General signal processing framework
- ALAudioExtractors are replaced by “processes” scheduled according to priorities
- They are split in subentities, “filters”More granularity ⇒ More Modularity©
- Synchronisation between sources
- Filter chains can be built at runtime (useful for prototyping)



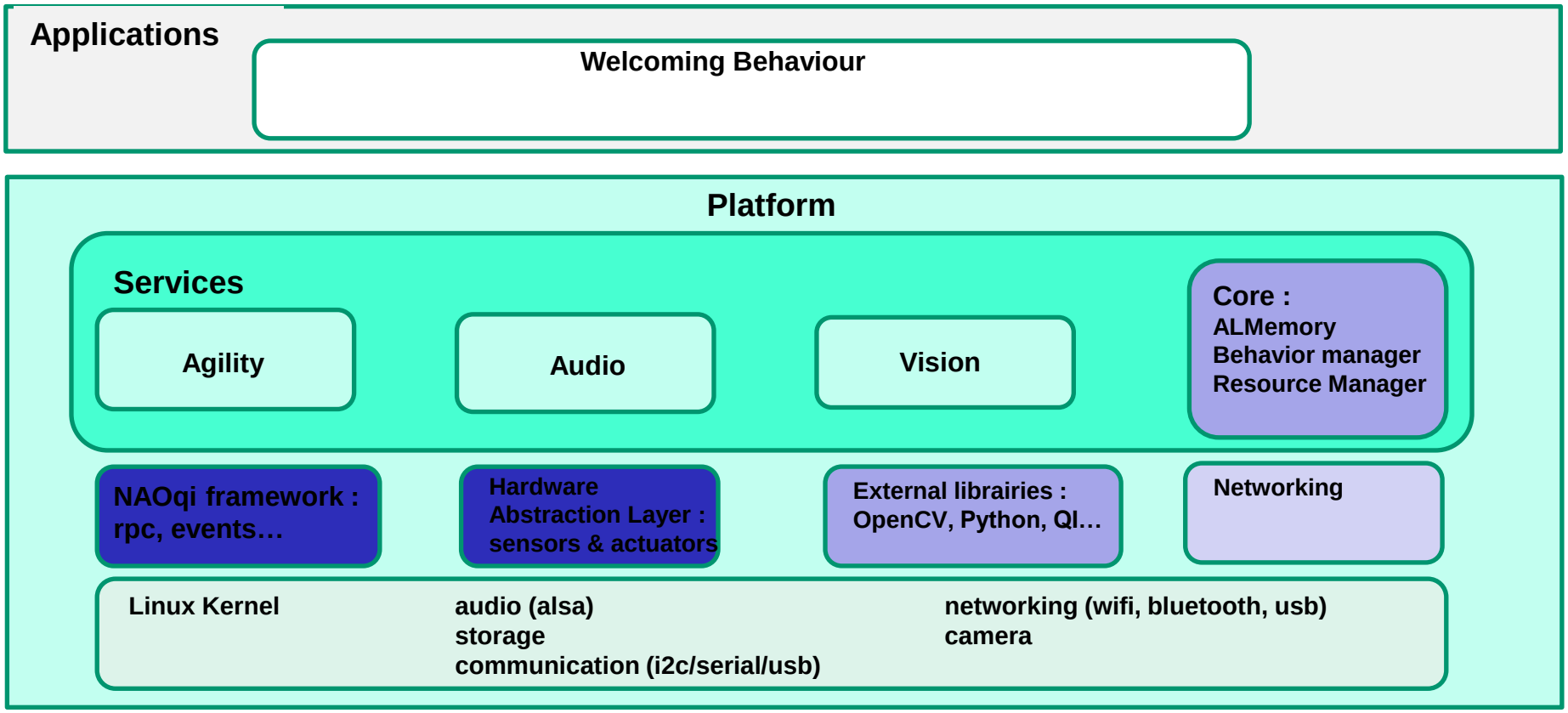
Integration of microphones array

- Originally 4 omnidirectionnal microphones (front, rear, right, left)
- First prototype : 4 external directionnal microphones



Software Integration

- Integration of your C++ functions into NaoQi
- Easy as long as you are not using special framework
- Aldebaran assist you in using the SDK



Development of the applications and evaluations

Deliverables

- D5.1 Software and documentation of architecture for audio integration
  - M6
  - Aldebaran
- D5.2 Report on applications and evaluation scenarios
  - M12
  - Aldebaran with all the partners
- D5.3 Microphone arrays and video-augmented robot audition for the humanoid robot Nao
  - M30
  - Aldebaran with BGU and FAU
- D5.4 Evaluation of humanoid robot demonstrators
  - M36
  - Aldebaran with all the partners