Introduction & objective

- Users need highly intelligent service robot at low cost
  - intelligence can be realized by using many of perception and actuation devices.
- Robot can not be equipped with all sensors for intelligence because of cost of sensors and spacing problems.

Roboid Framework

- Roboid Device Description model
- DMP: Image-Based real-time control protocol
- Contents authoring tools

Dynamic Service composition for Networked Robot

- Roboid Studio runtime environment (local node)
- Automatic connections

LabComm on DMP: Dynamic service discovery protocol

- Reconfiguration (LabComm) - Component discovery - Establishing connections
- Real-time Communication (DMP) - runtime Bit-mapped control

DMP(Device Map Protocol)

- The real-time protocol for synchronizing multimedia and control data simultaneously
- Support real-time and low latency communication for small devices
- Support bit-mapped control

LabComm

- Including a small language which can define a protocol
- Including a compiler that generates encoder/decoder routines
- Compact an Media/language independent

Contents-oriented Service Composition

- Location matching
- Functionality matching

Service consumer(contents) : Required service-description of a content

Service provider(component) : Functionality-description of a component

Future Works

- Ontology-modeling for functionality of components
- World modeling for service-discovery among components
- General Description of the location