IPRO 334
Robotics for Elderly Living Environments

Final Presentation

05.01.09

Our Current Situation

- In approximately 100 years, the elderly population has increased eleven fold while non elderly only saw a three fold increase
- Advances in modern medicine and improvements in nutrition are allowing for longer life spans and can support an aging population
- Health care is compromised with the increasing shortage of RNs and caregivers
- Projected RN shortage to reach 1 million in 2020
- What can we do to help?

The Team

1. Electrical & Software
Computer science, electrical engineering, mechanical engineering.

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2. System Integration
Institute of Design, psychology, mechanical engineering

Sarah Bowes
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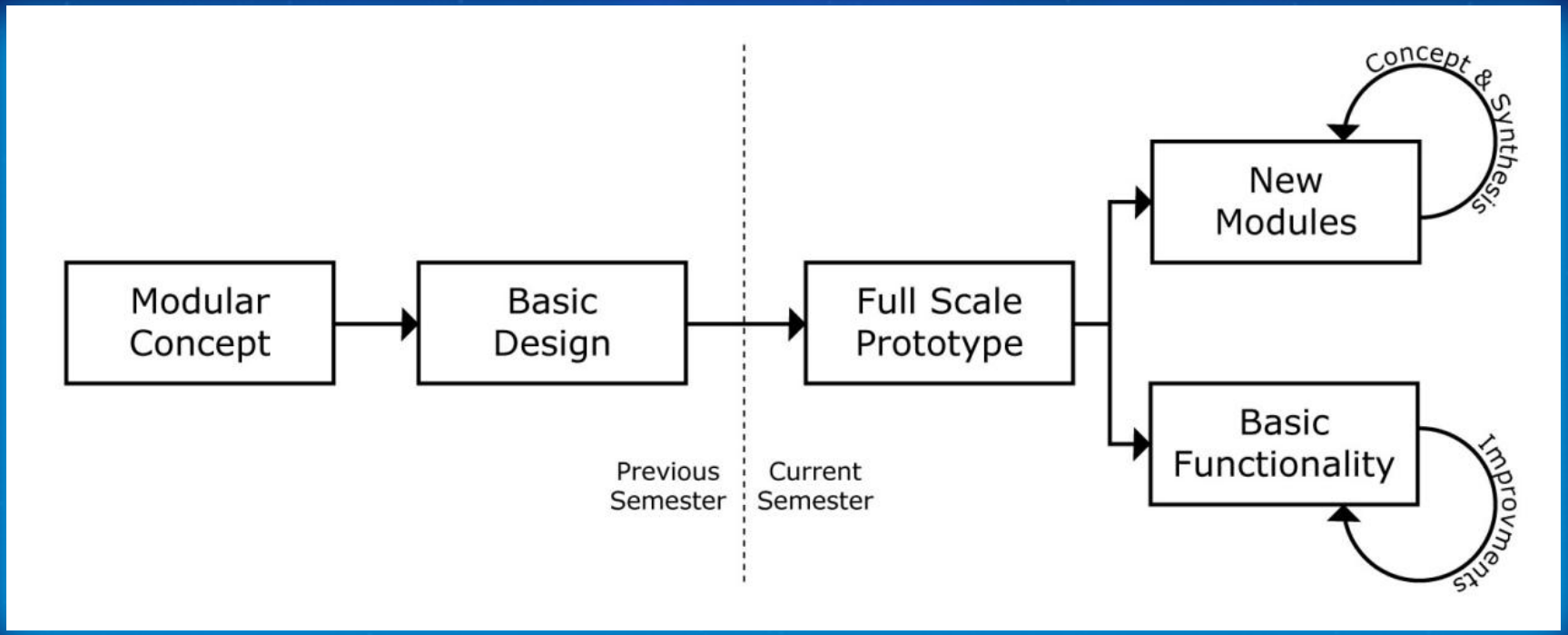
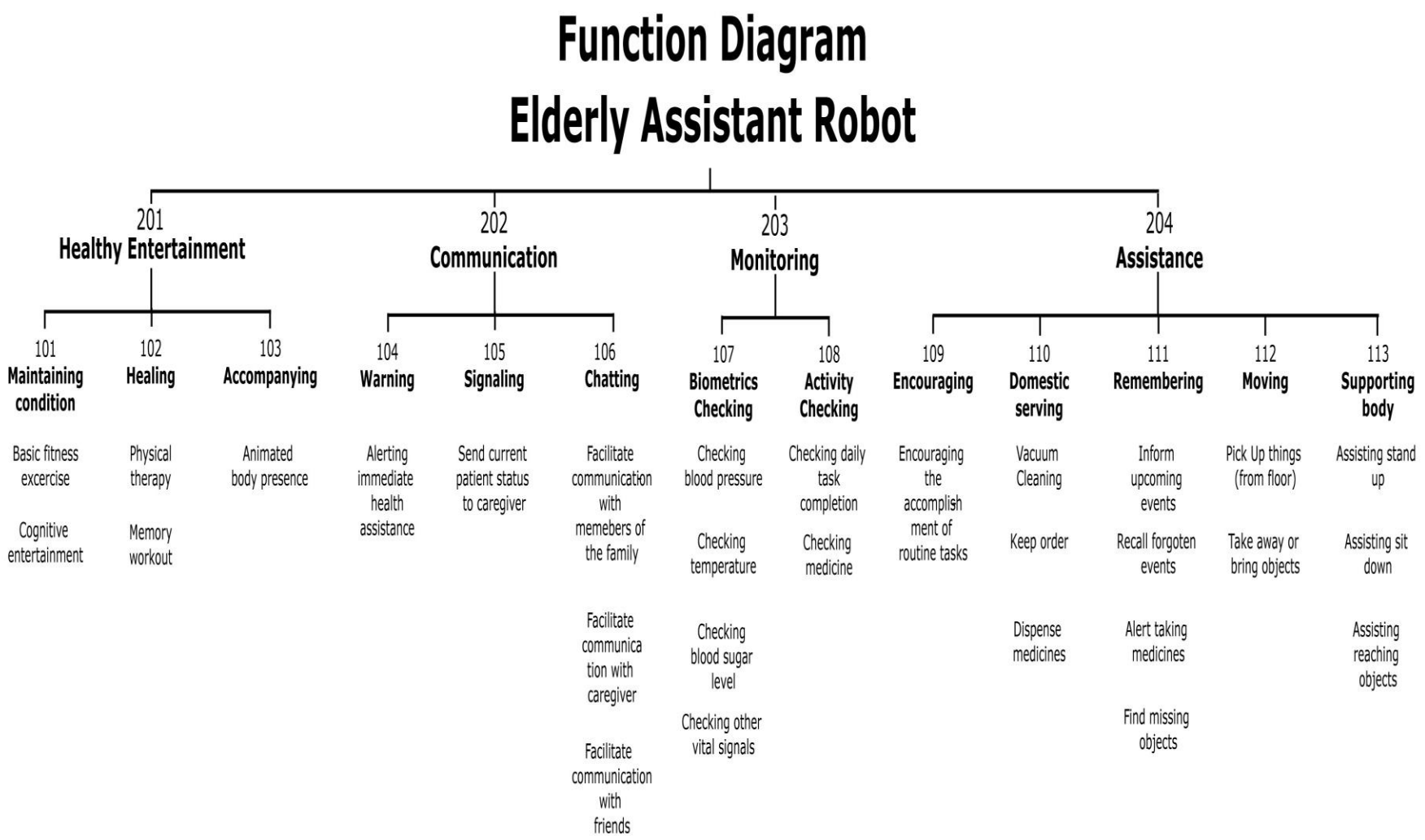
Project Goals



Robot Brainstorming



The Robot

- Features
  - Mobility
  - Pill Dispenser
- Additional improvements
  - Can be fitted with additional modules
  - Path finding
  - Voice recognition
- Purpose
  - Does this robot serve the purpose for which it was built?
  - Additional testing in simulated/actual environment

Software/Interface Team

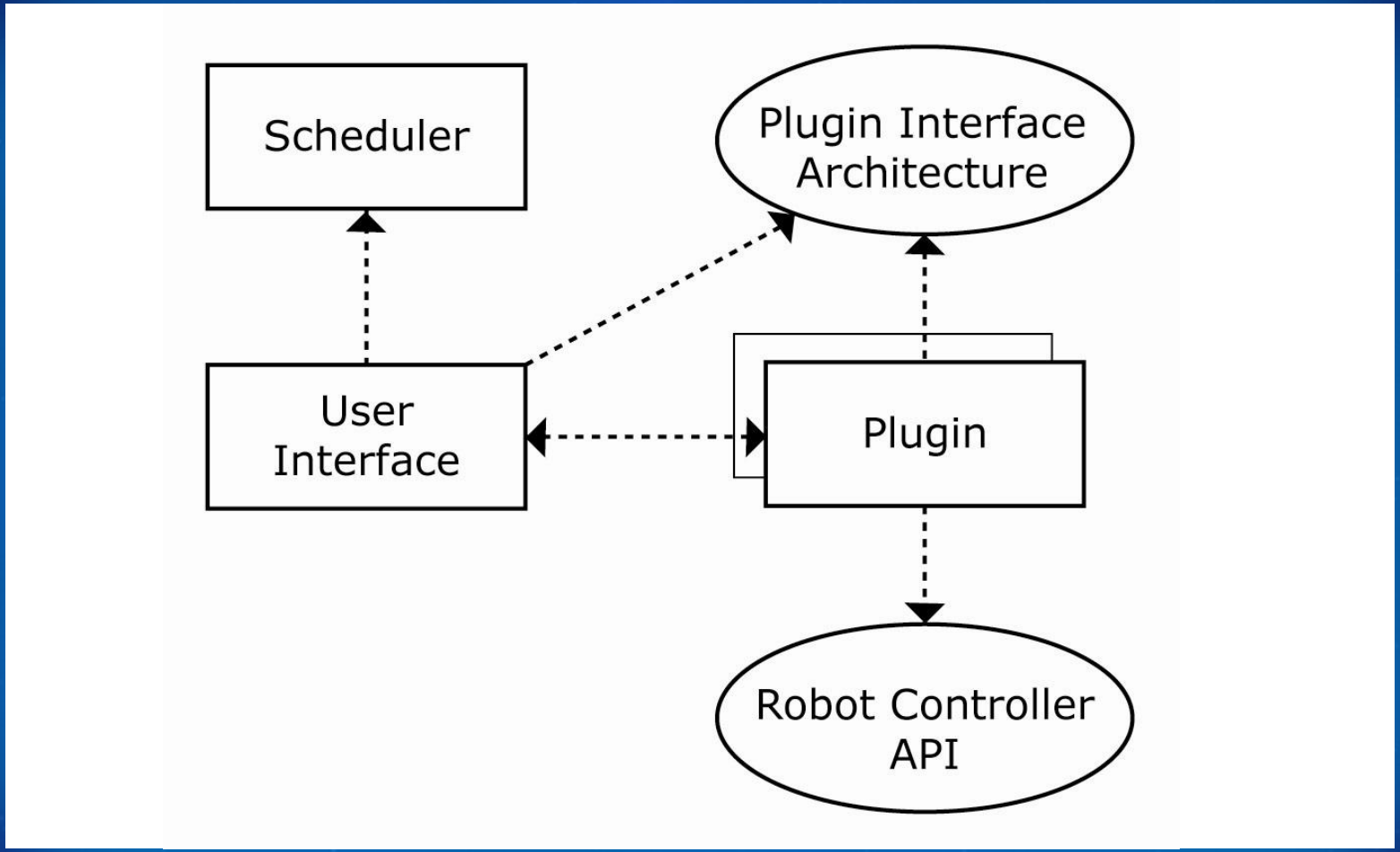
Software

- Develop a modular software architecture, that is a working platform for future robot prototype developments.

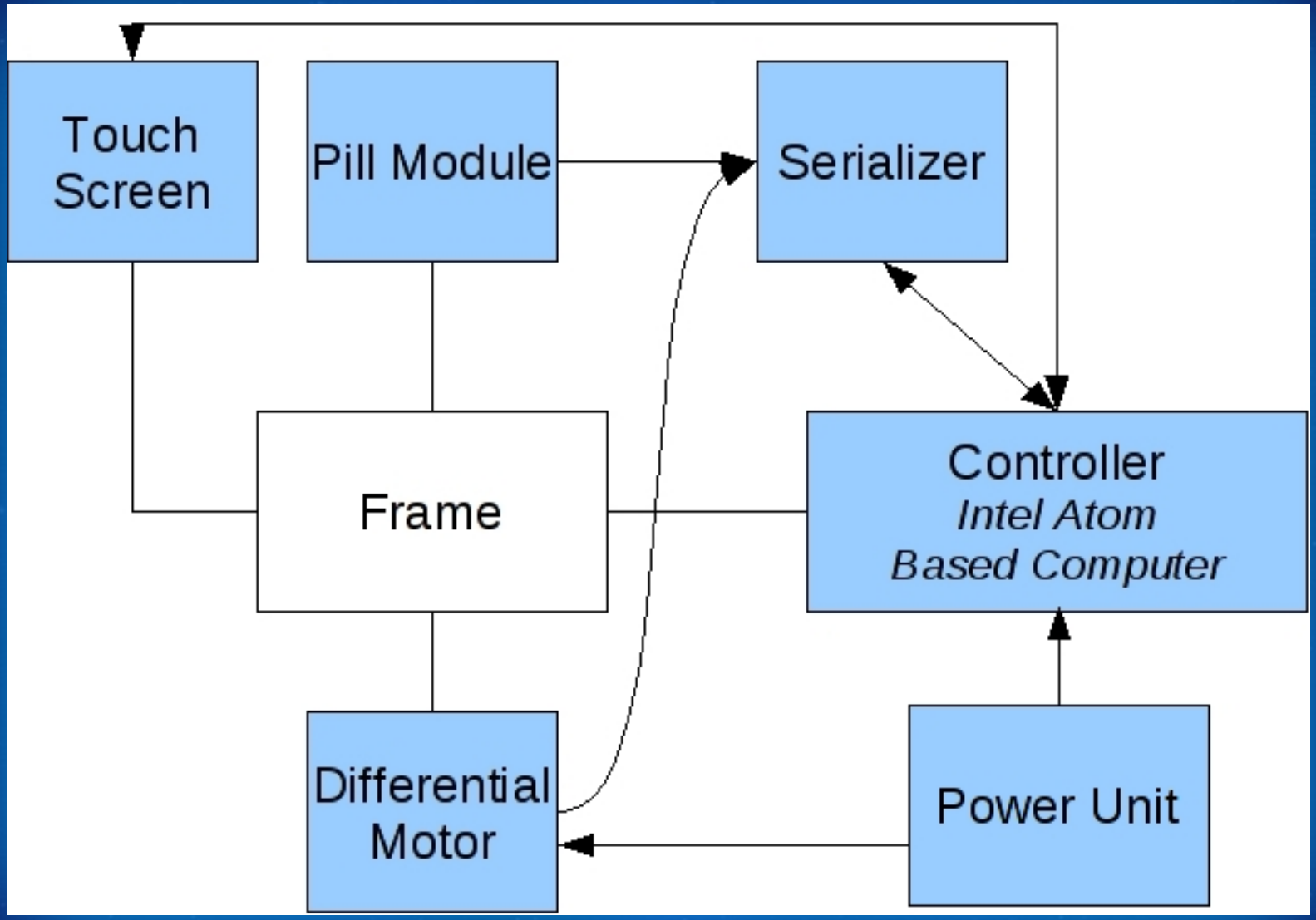
Interface

- Develop a working, low fidelity interface to test interaction methods that work best for the elderly
- Use interface to test how a visual display supports hardware module functionality e.g. pill dispenser

Software/Interface Team



Electrical


Touch Screen
Pill Module
Serializer
Frame
Controller
Intel Atom
Based Computer
Differential Motor
Power Unit

Further Research

- More modules
  - Entertainment
  - Communication
  - Monitoring
  - Assistance
- Interviews
  - Elderly
  - Registered Nurses
  - Caregivers
- Module connections
  - Better platform
  - Greater space

Acknowledgements

- Advisor Keiichi Sato
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Questions?