A Survey to Support the Development of an Interface Device for Integrated Control of Power Wheelchairs, Computers, and Other Devices

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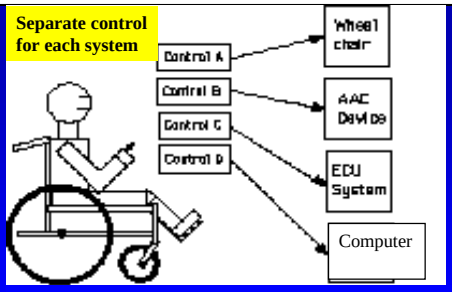
Scope of the Project

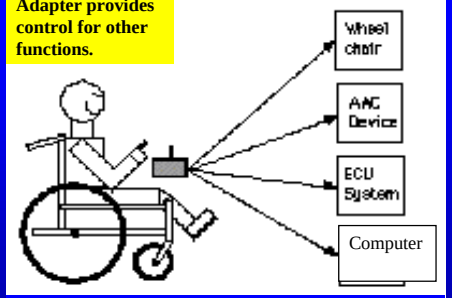
Many people who use powered wheelchairs can benefit from using the wheelchair controller to operate other functions. This project is exploring new options for implementing this function with improved performance over traditional approaches

Separate control for each system



Distributed Controls

Joystick to Mouse Adapter provides control for other functions.



Integrated Control

Elements of the Project

- Definition
  - Survey
  - Literature review
- Development
- Evaluation
- Technology transfer

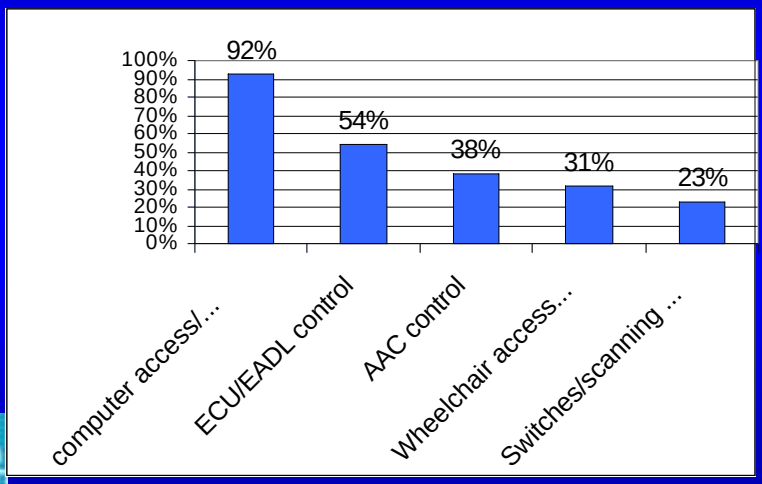
Objective & Methods

- Purpose was to collect and analyze data on issues considered essential in the design of a prototype integrated controller.
- Developed web-based Likert-type survey
- All recruitment, consent, and completion conducted through email and Internet.

Results

- 14 Respondents
  - Professionals (clinicians, manufacturer, supplier)
  - Researchers
  - Consumers
- 100% agreement on usefulness of integrated device

Results: functions/options that should be performed by an integrated controller



Results

- **Identification of communication protocols for use or access:** Universal Serial Bus (USB), Apple Desktop Bus (ADB), Infrared (IRDA), parallel port/serial port (RS232), Radio Frequency (IEEE standards or Bluetooth), General Input Device Emulating Interface (GIDEI).
- **Safety concerns**: clear indication of use; immediate “kill switch” or emergency shut off; backup/emergency access; interference with other devices
- **Survey confirmed the market interest in integrated controls**

Toward the Development of an Interface Device for Proportional Mouse Emulation through a Power Wheelchair Controller.

Monday
9:15 AM
Genoa Room

Acknowledgement

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