BRIDGING THE GAP: POWERED MOBILITY MEETS ELECTRONIC AIDS TO DAILY LIVING

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Living with a severe disability can be devastating. The loss of mobility, independence and control of one's environment can lead to low self-esteem and depression. The use of EADL (Electronic Aids to Daily Living) to increase independence and access to one's environment, can improve a person's self esteem by allowing them to participate in every day living, school, work, and leisure activities.

EADL Basics: What is an EADL and How Does it Work?

Also known as ECU (Environmental Control Unit), EADLs provide a means to interact and manipulate one or more electronic appliance such as: a television, radio, CD player, lights, and fan etc. This is accomplished using voice activation, switch access, a computer interface, and adaptations such as X-10 units. All EADLs transmit signals to the devices that will be controlled and many factors must be considered when choosing the transmission method. AC wiring throughout the house, ultrasound, infrared (IR), or radio frequency (RF) signals can all be used to transmit these signals.

Access: How Does One Control / Activate the EADL Device?

EADL have historically been divided into two basic types: computer based, and stand-alone or direct access systems. However, recent developments in powered mobility have made it simple and cost effective to integrate EADL functions with one's power wheelchair drive controls, eliminating the need for additional switch access.

Integrating EADL with Powered Mobility: Equipment Options

ECU Module: Allows direct interfacing of after market devices. Provides user access through power wheelchair drive controls using relay switches through ECU channels.

- TASH Relax II
- Door openers
- Specialized telephones

Specialty Devices: Plug and play devices designed to interface directly with specific power wheelchair controls.

- Switch-it mouse driver

All-in-one displays: Specialty control devices equipped with infrared and blue tooth transmitters. Programmable for various alternative drive controls as well as numerous EADL applications.

- Integrated, wireless mouse emulation
- Easy to train, intuitive IR programming

Integrating EADL with Powered Mobility: Important Variables to Consider

Power wheelchair electronics: Does the client have an expandable system as a foundation? Are the appropriate switch interfaces present? Can you change drive control, as client needs progress without effecting EADL function? Can you retrofit EADLs at a later date and at what cost?

Programmability: Is standby select available? Is programming Global or profile specific? Can menu be tailored to individual client? Can the client manipulate/re-train the system over time?

Menu navigation: Is a quick access list available? Is there an integrated scanner present? Can the navigation method be changed over time, as one's needs change?

Modularity: Can the system start with a single function and expand into a full system at a later time? Can the user exclude functions that he/she does not need?

Multiple control base sites: Can the system be operated from a wheelchair as well as from bed and from different rooms?

Direct Connection: Does the ECU provide for the operation of electrical devices by direct connection or is there a need for an X-10 transmitter?

Accessory Accommodation: Will the system accommodate the addition of accessories to control additional functions?

The EADL Evaluation: Important Variables to Consider

Access: Can the user effectively operate the available access method? Is the access method reliable and repeatable? Can the access method be modified to accommodate changes in the user's condition?

Ease of Learning: Can the user handle the memory and sequencing requirements? Is the method of operation intuitive, logical and easy to learn?

Menu: Are choices presented in an understandable way? Is the entire menu visible at all times so the user can see all options? Can the menu be customized to include icons? Are there different font sizes and types?

Feedback: Can the user adjust the EADL feedback to accommodate specific needs (e.g. vision or hearing problems). Is the feedback reliable and recognizable?

Funding and Cost: Consider which system gives you the most function for the dollar? Which is the best VALUE? Can mobility funding apply to EADL equipment?

Speaker Bios

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John Laurindo is a Rehab Technologist who is employed at Thames Valley Children's Centre in London, Ontario. John works on an inter-disciplinary team of professionals who assess and provide custom access solutions for children with physical disabilities. He has 17 years of experience specializing in integrating driving controls for mobility as well as communication aids. The majority of his responsibilities involve designing and developing unique electronic interfaces to solve complex access issues. He pioneered the use of proximity sensors as an access driving system for power wheelchairs and over the years has collaborated closely with wheelchair manufacturers in the area of specialty controls.