

# Power Wheelchairs and Integrated Controls

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# [ Objectives ]

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- Overview of the modern power wheelchair
- Introduce Integrated Controls (IntCon)
- Demonstrate modern technology interfaces...Bluetooth® and Infrared
- Provide information to assist a power wheelchair user to take part in the selection of appropriate electronics control packages in future wheelchair selections

# [ The Modern Power Wheelchair ]

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Mobility

Seating

Integrated Controls

Modern Device Interfaces

# [ What are Integrated Controls? ]

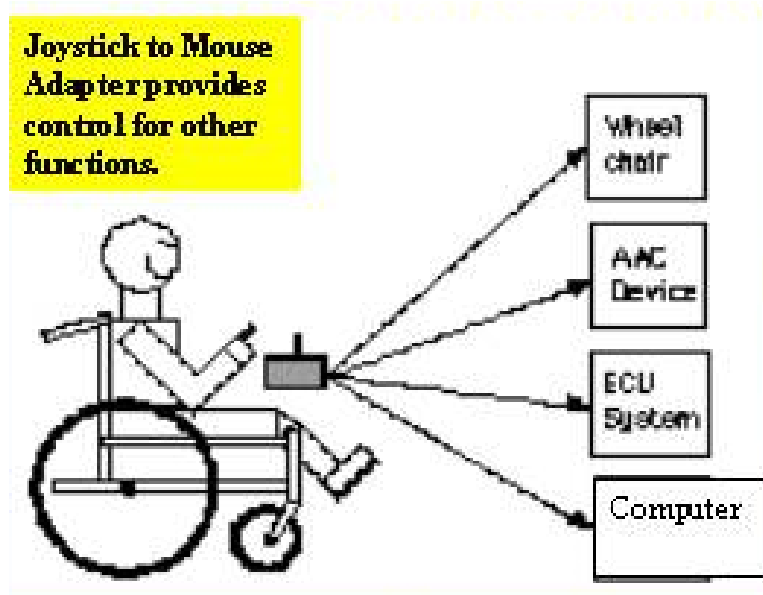
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In its simplest form Integrated Controls allow the user to control more than one assistive device through a single input device.

Integrated Controls is a broad term used to describe the method of interface, the hardware, the software, the electronics package, the associated technologies, and the accompanying hardware devices.

# [ Integrated Controls ]

Integrated Controls are a type of Universal Remote



# [ Driving Mode Demonstration ]



# [ Driving Mode Demonstration ]



# [ Seating Mode Demonstration ]





[ Seating Mode: Tilt ]



# [ Seating Mode: Tilt ]



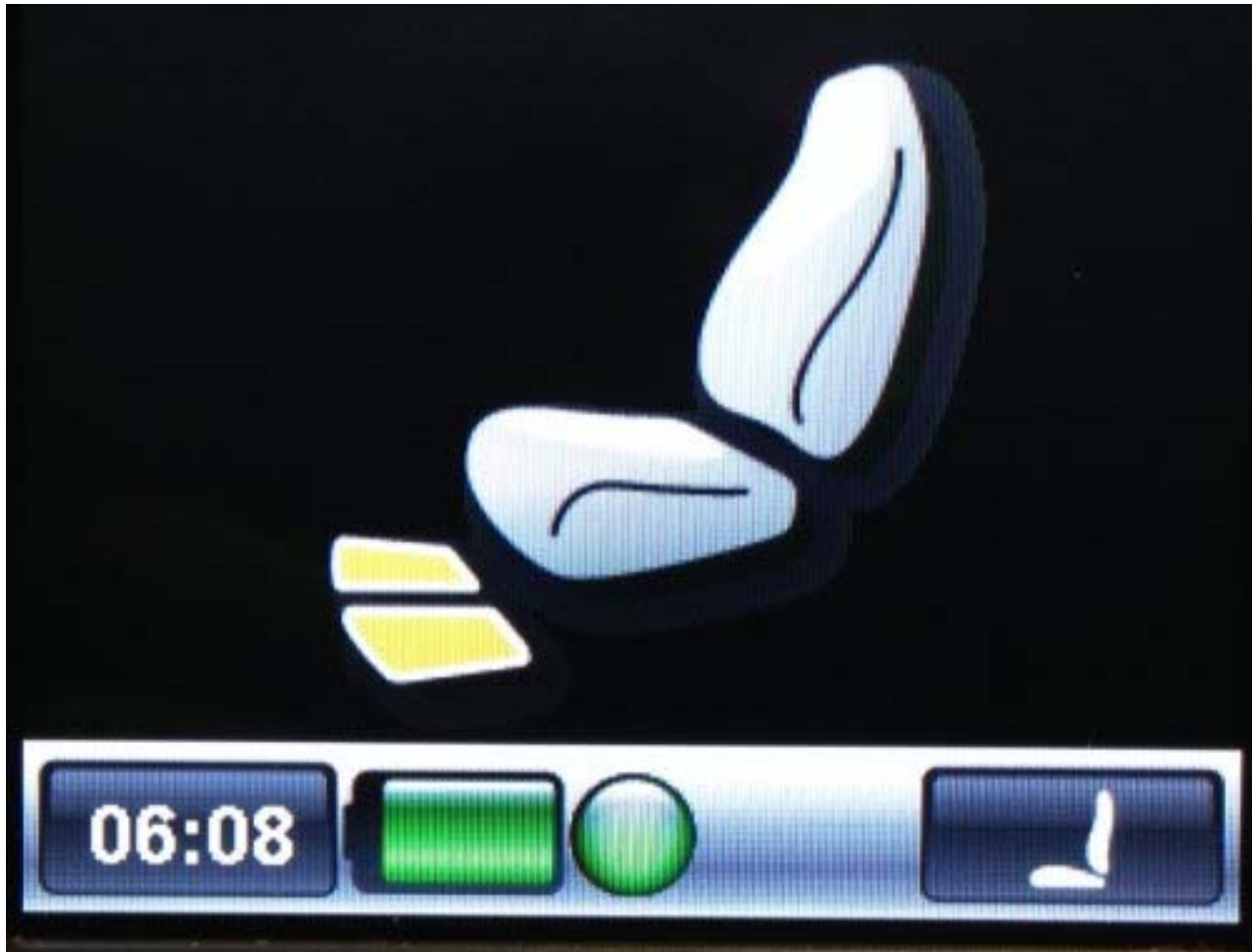
# [ Seating Mode: Recline ]



# [ Seating Mode: Recline ]



# [ Seating Mode: Power Leg ]



# [ Seating Mode: Power Leg ]



[ Seating Mode: Recline + Leg ]



# [ Seating Mode: Recline + Leg ]





# Seating Mode: Power Elevation



# [ Why use Integrated Controls? ]

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- Quick learning curve
- Versatility
- Streamlined approach to multiple device use
- Potential Cost effectiveness

But most of all...

Greater independence for the user.  
Enhanced sense of control.

# [What can you really control?]

- Infrared interface allows the user to control almost any modern consumer device that comes with a remote control
  - Televisions
  - Cable boxes
  - Heaters and Fans
- Bluetooth®
  - Mouse emulation
  - Many PCs, most laptops, Macs come with Bluetooth®
  - Inexpensive addition via USB dongle

# [Technology: Infrared]

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- Infrared is light frequency wavelength
- Used for wireless communication
- Common in consumer electronics
- Line of sight, directional
- Infrared codes may be learned by most integrated control systems
- IrDA (Infrared Data Association) requires a minimum of one meter of transmission but many consumer devices will transmit up to 3m+

# [ Infrared Demonstration ]



# [ Infrared Demonstration ]



# [ Infrared Demonstration ]



# [ Technology: Bluetooth® ]

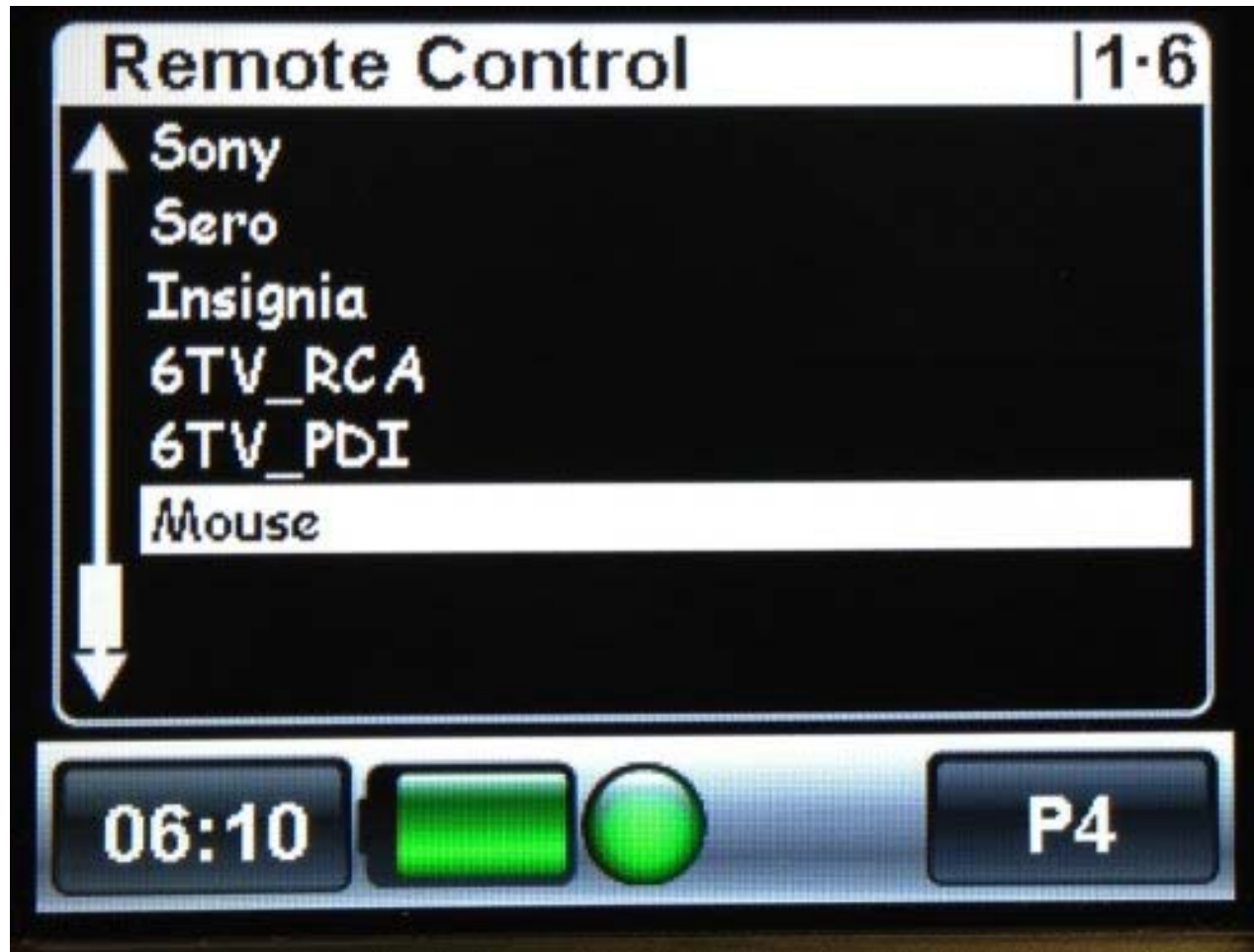
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- Wireless technology standard allowing electronic devices to communicate
- Wireless communication over short distances using radio transmission
- Becoming common in consumer electronics
- Omnidirectional
- Bluetooth® specs call for a maximum connection distance of ten meters



# [ Bluetooth® Demonstration ]



# [ Bluetooth® Demonstration ]



# [ Bluetooth® Demonstration ]



# Technology: Future

- Currently the Infrared and Bluetooth® are available only with the Enhanced Display...but expect these features will be provided in hand controls in future
- Integrated controls will provide interfaces with cell phones and tablets

# Power Wheelchair User: Your next chair

- Features of chair should meet your needs
- Funding
- Bonus features might be a plus, but they should still meet your needs
- There are pros and cons
  - Power issues
  - Unable to use from bed