

# D3. Mobile Manipulator Robot 7 Day In-home Evaluation

Project Team: Phillip M. Grice, Henry M. Clever  
Principal Investigator: Charles C. Kemp

## How might individuals with significant motor impairments use an assistive robot on a daily basis?

**Evaluation:** 7 Day, 24 hour continuous, in-home access

- Users: Henry and Jane Evans – Henry has severe quadriplegia following a brain-stem stroke in August 2002. Jane is his wife and primary caregiver.
- Location: The Evans' home in Los Altos, CA, USA
- System: PR2 Robot with an accessible, web-based teleoperation interface



Henry and Jane Evans



PR2 Robot



Accessible web-based interface

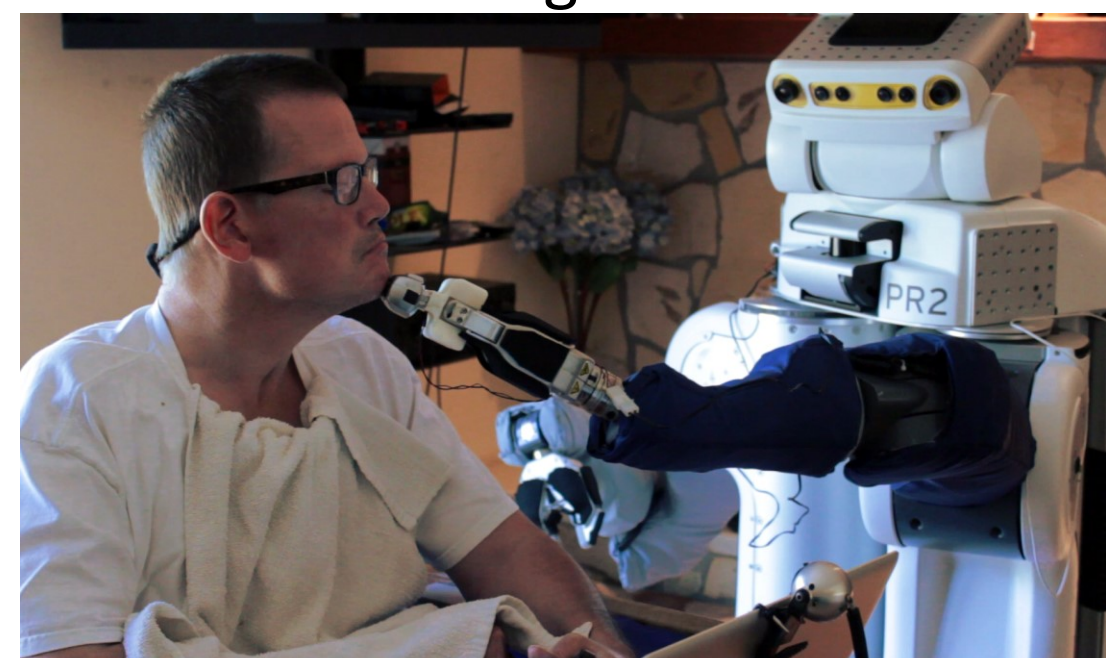


Layout of the Evans' home

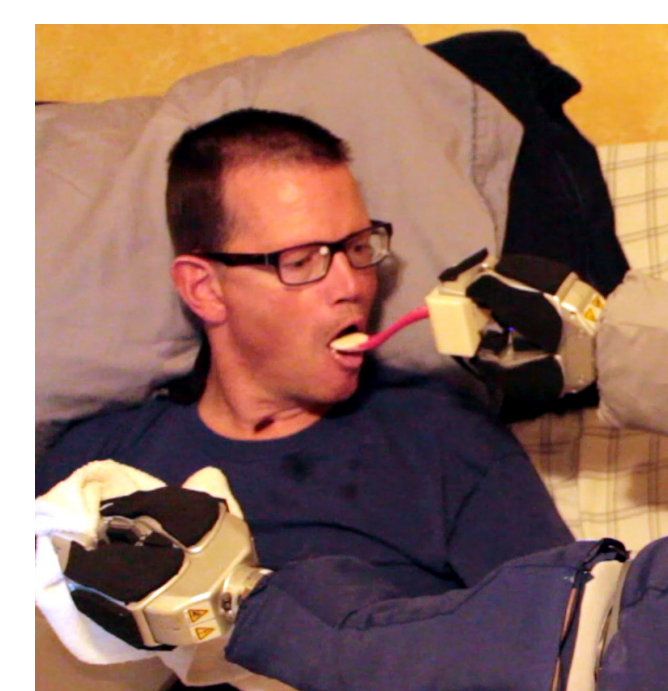
## Results:

- 22.5 hours of use (16 sessions)
- 24 different tasks
- Largely independent during use
  - Able-bodied assistance often requested for setup
- 4 Safety interventions
  - General Challenge: Ignoring spurious user input
- Task-level data analysis is ongoing

Shaving his face



Scratching head & wiping his face



Eating yogurt



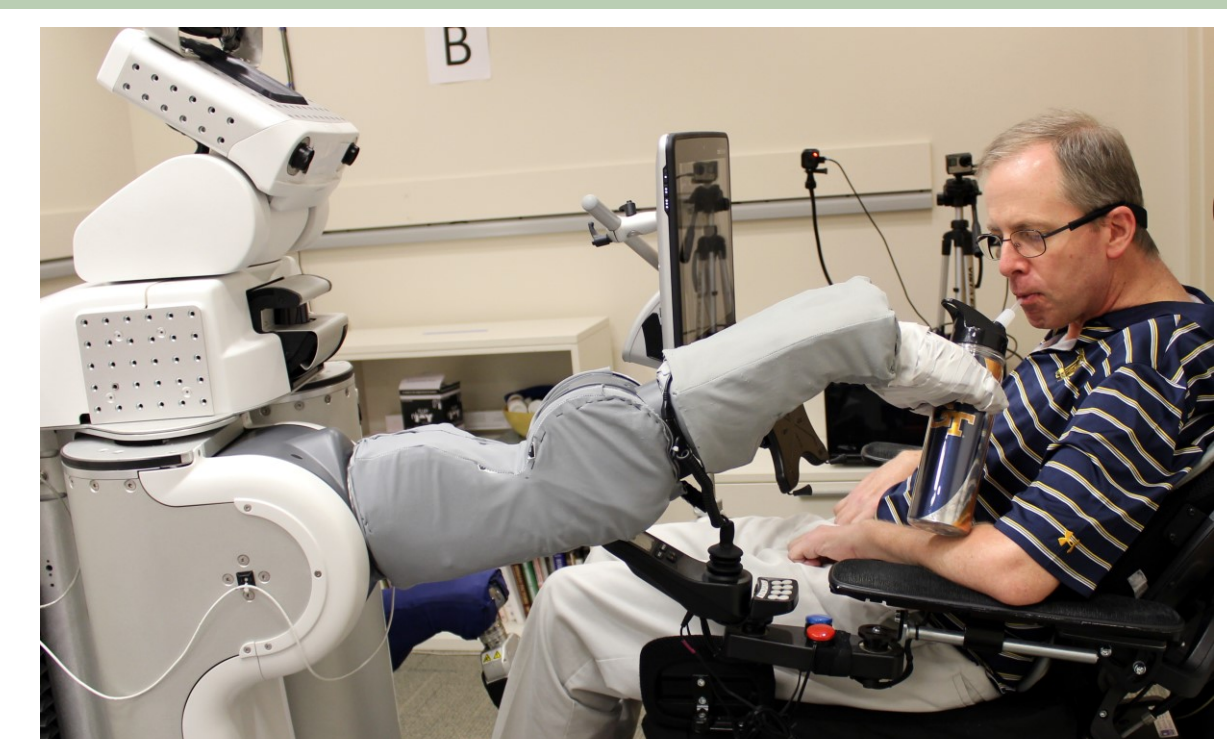
Turning on lights

## Ongoing: Multi-user study

- 14+ Participants w/motor impairments
- Clinical manipulation benchmark
  - Action Research Arm Test (ARAT)
- Simulated daily living task



Clinical benchmark



Getting a drink using PR2

[www.TechSage.gatech.edu](http://www.TechSage.gatech.edu)