In Need of a Lift: Students design innovative patient lift system | College of Engineering

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Published in Creating Tomorrow – Oct. 15, 2016 – Senior design students in the Mechanical & Aerospace Engineering Department have created another assistive technology device that may lead to improvements in patient care and mobility.

From left: Kye McCleary, Matt Schumann and Kyle Christian (all BS ’16 MAE)
combined a hydraulic lift with a motorized base to create a mobile patient lift system.

The electric patient lift system is designed to transfer an individual from a chair or bed to another location. The 'Mobilift' system is a combination of an existing, commercially available hydraulic patient lift coupled with a custom motorized base. The machine can support a maximum of 300 pounds and can be maneuvered manually or with the motorized wheels using a handheld remote.

See the Interactive Feature

Students Kyle Christian, Kye McCleary and Matt Schumann wanted to create something new and creative that could be marketable in the assistive technology industry.

After the lift was completed and tested for safe operation, it was donated to a Cache Valley man who has suffered from the effects of muscular dystrophy since he was 15. Reed Painter of Providence, Utah, is a USU alumnus who worked as a librarian for the university for 33 years. Today, Painter has limited mobility and depends on his wife and daughter to move around his home.

With the Mobilift system, Painter is fitted with a sit-down style harness that clips into the lift arm. An assistant can then push the apparatus between rooms and lower Painter into a different location, a bed, or his electric wheelchair.

The student designers said they enjoyed working on the project and loved seeing the Painter family benefit from the machine.

"It was very exciting to work on a project that provided an opportunity to create something new and innovative, while improving the quality of life for a family in need," said Kye McCleary. "These are two reasons anyone would want to be an engineer, and we got to do both."

The project was completed with direction from MAE Professor Rees Fullmer and Clay Christensen, an administrator for the Utah Assistive Technology Program at USU's Center for Persons with Disabilities.

Mobilift Patient Lift System Design Requirements:

- Comply with governing standards (ADA & ISO)
- Support a maximum of 300 lbs.
- Support a person up to six feet tall
- Maneuverable through standard doorway
- Capable of swiveling user 360 degrees
- Able to lift to full position in 20-30 seconds

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Media Contact: Matt Jensen – Utah State University, College of Engineering | matthew.jensen@usu.edu | office: 435-797-8170 | cell: 801-362-0830 | engineering.usu.edu | @engineeringUSU