Left to right, Jim Howes, Scott Delong and Michael Davis.

Left to right, standing, Wade Cyr, Paul Delorme and Joel Anderson, with Jim Parsons.

Garett Lefebvre and Douglas Plourde set out to design, build and test a wrist-worn signaling device. Their guide was an existing model used primarily by wheelchair-bound individuals who had limited communication ability and motor skills. Their goals included ease of activation, distinct audibility in a busy room and cost-effectiveness.

At a cost of $5 each, the students designed new devices using a calculator battery, push-button switch and mini-buzzer housed in an empty plastic film canister and attached to Velcro. Six to eight of the devices can be made in an hour.

"It's a simple device but so important to these people," said Plourde. "For many, it's their only means of communicating."

"You learn engineering not working with one big piece of machinery but by working everyday with people."

Increasing independence also is the philosophy behind an automatic page turner that Daniel Bavelaar, William Bull and Marc Doiron worked to redesign. Through weeks of testing, the students addressed the major problems of turning too many pages or none at a time. Their recommended modifications include increasing the contact on the wheel lifting the pages, mounting the page turner on angled brackets to take advantage of gravity and mounting the bracket on a removable tray for stability and ease in use with a wheelchair.

"With this a person is gaining independence," said Doiron. "It's the kind of thing we take for granted but seeing what's on the other side of a page is worth a million dollars. If we get an A or B on the project, who cares. But if we can improve it and it's a success, that's our whole object. You learn engineering not working with one big piece of machinery but by working everyday with people."