

# Emily Longwith, Biological Engineering

Year in School: Senior  
Hometown: Seymour, MO  
Faculty Mentor: Dr. John Viator, Biological Engineering  
Funding Source: Department of Biological Engineering

## Improved mounting device for augmentative communication Andrea Erler, Nathan Granneman, Emily Longwith, Caleb Rich, & John Viator

For people without both mobility and speech capability, communication can be difficult. The Assistive Technology Evaluation Center at the University of Missouri—Columbia strives to help people find an effective way to communicate regardless of their disability. Michelle Wheeler and Shauna Dunnaway of ATEC presented the design team with a challenge: to develop an improved electronic communication device. Switches, activated by the slightest facial twitch, can be used in conjunction with an on-screen computer keyboard to input messages which a synthetic computer voice then generates. Limitations occur with the technology currently on the market. Switch mounting devices currently attach to a user's bed, table, or wheelchair, and either lack flexibility for precise adjustment or are too flexible and drift away from the user. The person's body may also shift throughout the course of the day, leaving the user unable to reach his or her sensor and therefore unable to communicate. The design team proposed a device which mounts the sensor directly to the user through a modified pair of eyeglasses. Firm but flexible wires extend from the temples of the glasses to the preferred facial muscles of the user

This project was completed to fulfill a Capstone requirement.