Title: S.W.A.T. Reconnaissance Vehicle
Students: ECE, ECE, ME, ME
Topics: Mechanical Design, Microcontroller Coding, PCB Design, Motor Control, Control Theory, Communication Protocols, Power Electronics

Description
Today’s law enforcement professional can face many difficult and often life threatening situations during the course of their daily activities. For those high risk incidents, the S.W.A.T. (Special Weapons And Tactics) team can be deployed. Having a clear understanding of a hostile environment without unnecessarily putting officers and civilians in harm’s way is critical.

The Salem PD would like this senior design class to develop a remote-controlled reconnaissance vehicle to supplement its S.W.A.T. team and provide real-time audio and video from hostile situations.

Absolute Minimum Requirements
- Ability to navigate stairs or debris inside buildings
- Broadcast audio/video back to a base station
- Deliver/carry items (possibly their existing wireless video devices)

Desired Features
- Ability to right itself if knocked over
- Ability to open interior doors or closed containers
- Wireless operation w/ extended battery life
- Low light / no light video
- Multiple cameras/camera views
- Articulating camera
- Water resistant/proof
- Two-way audio capability
- External lighting