

Team Apocalypse: Vehicular Event Data Recorder

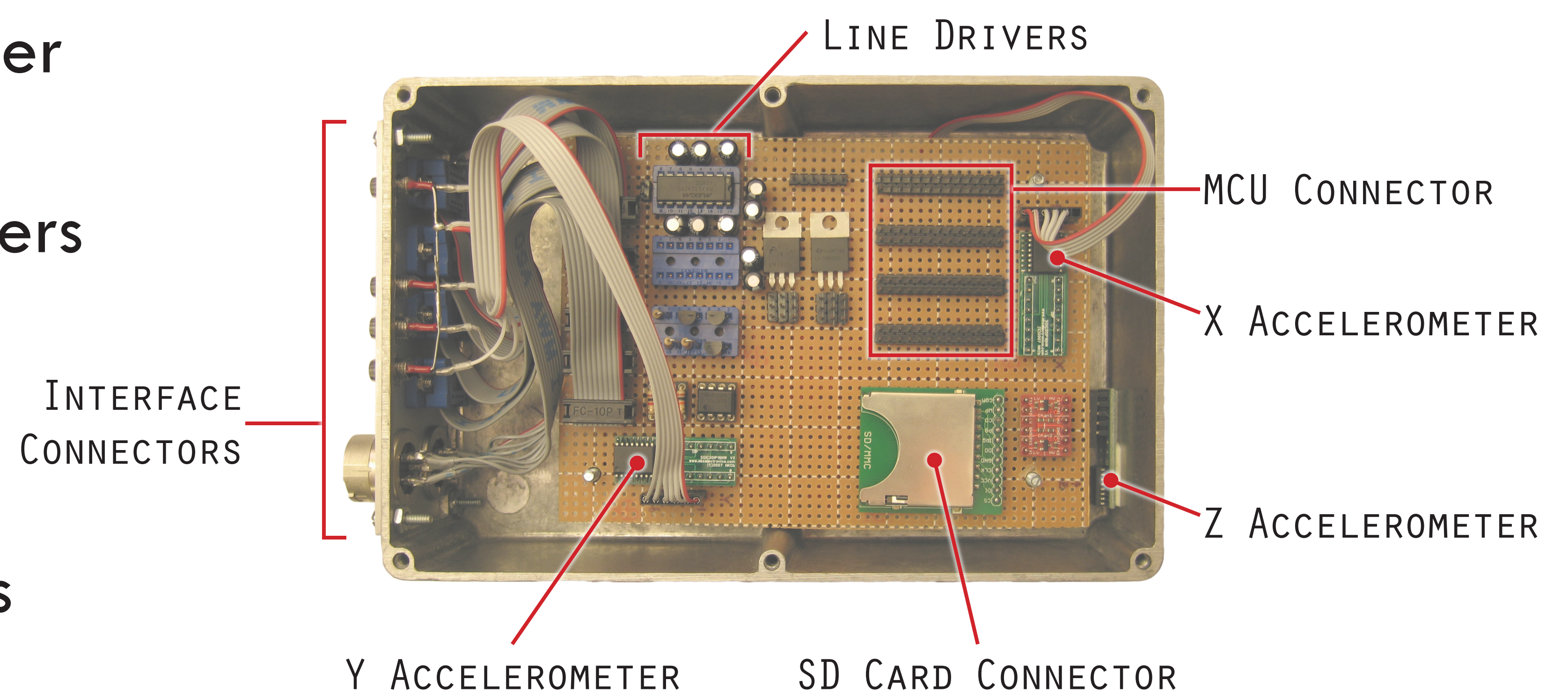
Mark Hamilton, Rebecca Levin
{mthamilt, rlevin}@ece.cmu.edu

+ MOTIVATION

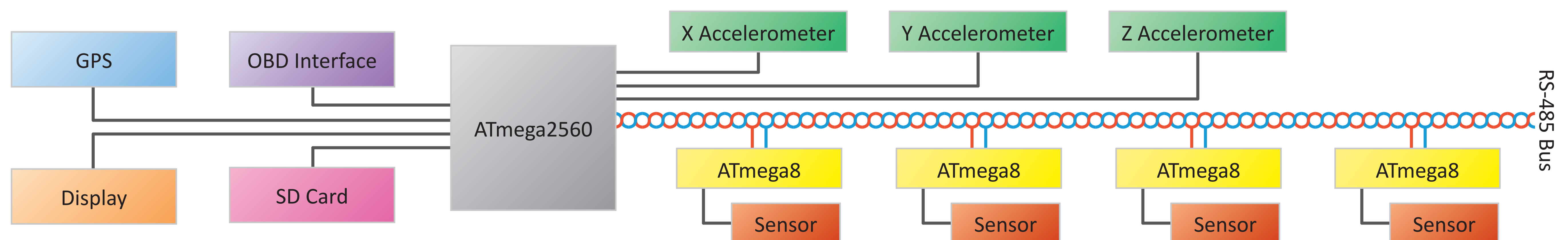
- Create a device to assist in reconstructing the sequence of events in a vehicle crash
- Provide a flexible platform to allow for aftermarket installation in cars
 - Some newer vehicles provide some types of event data recorder capabilities but these devices are not readily available for installation in any vehicle
- Gather data from a wide variety of inputs including switches, force sensors, GPS, accelerometers, temperature sensors, OBD, and others
 - Current systems only use basic sensors that provide little useful data

+ DEVELOPMENT ENVIRONMENT

- ATmega2560 master microcontroller
- ATmega8 slave microcontrollers
- Freescale MMA2301 accelerometers
- Locosys LS20031 5Hz GPS
- ElmScan 5 OBD Interface
- SD card for logging data
- Other various switches and sensors
- All custom software written in C



+ ARCHITECTURE



+ RESULTS



- Slave microcontrollers interface with various sensors
- Master microcontroller reads data from slaves
- Accelerometer data read from analog inputs on master
- Additional serial input recorded from GPS and OBD
- Data written to SD card
- Debug output via serial port