

BRINGING COMPUTING TO THE MAINTAINERS OF LARGE VEHICLES

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The maintenance of large vehicles (airplanes, trains, tractors) provides difficult problems for computing devices. The environment has extremes of temperature and light, dirt and grease are common and tools such as computers must be very robust. The technicians who perform the maintenance must have the mobility to move around, over, under and inside the vehicle and must have their hands free much of the time. Maintenance is an activity that is performed both solo and with collaboration and the individuals who perform it tend to have little computer sophistication.

Since 1993, the Wearable Computer Laboratory at Carnegie Mellon University has been constructing and testing a variety of different hardware and software systems in a variety of different maintenance contexts. Five different disciplines have been involved in these designs: user interface and industrial designers and software, electrical and mechanical engineers. Some of these systems constructed are body worn, some are hand held. All have limited capability for input and output and are designed for the maintenance environment.

This talk will describe the canonical solutions that have been developed during the wearable work and how and why the systems that have been developed vary from the canonical solution. Although none of the systems utilize the canonical solution, it still provides the basis from which the designs have progressed. The manner in which the various disciplines interact and the constraints they place on each other will also be explored.