

# **A Prototype Wearable System for Field Computing**

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## **Project Overview**

We present 4 posters that present the full range of our interdisciplinary Digital Government research program. The first poster describes a conceptual framework for accessing, using and collecting geospatial information in mobile data collection environments. The next 3 posters discuss specific components of this research, including interoperable digital geospatial libraries, wearable computing technologies for field data collection, and middleware to support adaptive exchange and analysis of geospatial data between the field computing and repository environments. In the final poster, testbed environments will be used to illustrate research principles in federal statistics applications.

## **Poster Details**

As part of Project Battuta, the University of California Santa Barbara under the National Center for Geographic Information and Analysis has been researching how state-of-the-art wearable computing technology can be of use in field data collection. We are currently building a prototype of such system, using the CharmKit PC-104 system. The prototype includes input from a single-hand keyboard called a Twiddler; from a digital compass with roll, pitch and yaw tracking; and from a small GPS receiver. Output is delivered to a MicroOptical eyepiece, which clips onto a regular pair of glasses. This system will be described and demonstrated, and experience gained in its construction shared.

Further work with the prototype relates to modes of operation. Two modes will be implemented: a navigation mode that leads the user through geographic space, using prior paths, or computed navigation information; and a positioning mode, where assistance to the user in geographic positioning and spatial alignment are given. Data collection will be conducted by filling in on-line Internet-based data base forms, presented to the user in context by Java applets running on a Mobile Internet platform. We will discuss research being conducted into aspects of the user interface such a system would require, including icons and graphics for the two modes, and map-based displays.