

Digital map of the world is product of a large-scale volunteer effort

With the help of more than 240,000 volunteer cartographers worldwide, OpenStreetMap is trying to create an Internet map of every street in every city and village on the planet.

Mike Swift, San Jose Mercury News, 6-9-10

SAN JOSE — When Brian "Beej" Hall first heard about an ambitious volunteer effort to create an Internet map of every street and path in every city and village on the planet, he was hooked. At the time, the nascent effort had only a few American members, and the U.S. map was essentially a digital terra incognita.

Just a few years later, the Berkeley software engineer is editing digital maps so precise they include drinking fountains and benches in the Bay Area parks where he hikes, and the mapping community has swelled to more than 240,000 global members. The effort, OpenStreetMap, is a kind of grass-roots Wikipedia for maps that is transforming how map data are collected, shared and used — from the desktop to smart phones to car navigation.

Volunteers have mapped bike paths in Silicon Valley, bear cages in the Berlin Zoo, and even places such as Nairobi slums that are often ignored by commercial cartographers. In the hours after the devastating earthquake in Haiti, OpenStreetMap produced detailed digital maps of a quake-altered Port-au-Prince that were crucial to relief workers on the ground, a "crisis mapping" template for future disasters.

But increasingly, the nonprofit community collaboration model behind OpenStreetMap, which shares all the cartographic data in its maps free of charge, is also changing the business of mapping, just as Wikipedia changed the business of reference material. More and more, the accuracy of searches on Google Maps or directions issued by your car's navigational device are based on data collected by Hall and other volunteer members of OpenStreetMap's do-it-yourself army.

"A lot of people thought 'Garbage in, garbage out' — if you only had the ordinary Joe on the street contributing data, you'd get bad data," said Steve Coast, who founded OpenStreetMap as a university student in Britain in 2004 when he couldn't find any open-source digital map data, and decided to go out and map Regent's Park in London himself. "And, in fact, it's much better data."

Coast also has co-founded a Menlo Park start-up, CloudMade, which produces a variety of for-profit map software products drawn from OpenStreetMap data.

OpenStreetMap uses public mapping data from government agencies and aerial imagery donated by Yahoo and others. Its master Internet map is also based on large amounts of data uploaded by volunteer mapmakers who use GPS units to trace roads, trails and other features. In November, CloudMade released a free Web application called Mapzen that allows people to edit the shape of a building, trace in a pond or label points of interest from benches to bike shops, together with an iPhone application, Mapzen POI Collector, that simply lets users add points of interest.

Google also increasingly relies on feedback from users to make sure its digital maps are accurate and comprehensive, but it does not allow users to directly upload data into its maps, at least not yet. In the next few months, though, Google plans to introduce a product in the U.S. called Map Maker, which gives users much more power to customize maps. And Tele Atlas — a company that supplies digital map data used for such things as car navigation devices and 911 dispatching — now allows individual users to suggest map changes

directly from their navigation devices.

Citizen mapping is "an evolution of the entire mapping process," said Richard Taketa, chairman of the geography department at San Jose State. It "is going to be part of the mapping world as we move on to the future."

Like orienteering or geocaching, mapping can become a kind of outdoor hobby, with a touch of something more.

"There is a very strong community ethic around it," said Marc Prioleau of Palo Alto, who has mapped mountain bike trails in the Santa Cruz Mountains and ski trails at Squaw Valley in the Sierra Nevada. "In some parts of the country, in some parts of the world, it's as much a social group as it is a maps group."

Shawn Britton, a Santa Clara software engineer, has discovered that adding mapping to the Sierra Club hikes he leads attracts more people. On a recent five-mile hike through Uvas Canyon County Park near Morgan Hill, his group carried two GPS units that tracked the exact location of trails.

Hall, who uploaded some of the first U.S. place names into OpenStreetMap from a government database when the community was first branching out from Britain and Europe, has attended a number of "mapping parties" in the Bay Area. People get together to map an area, then adjourn to a local watering hole to upload data and socialize.

"It's everything from young students still in college to retirees," said Hall, 38, who has also mapped remote areas of California such as the Lava Beds National Monument. "Some people love it because they love maps. Some people really like the idea of free data."

It took about three years for OpenStreetMap to hit 10,000 users, but in the last 12 months, the community has swelled from about 110,000 members to 244,000.

Google has also been surprised by the emotional response people have had to its Map Maker product, which is available in 181 countries from Africa to the Philippines, with some individual users contributing tens of thousands of edits.

"Those local users took that to heart as a way to elevate their local community, to sort of put themselves on the map," said Lior Ron, group product manager for Google Maps. "The concept of what a map is is changing. With these tools, this is no longer just something that is owned by a government; it's owned by the community."

There is debate about which model produces better maps — OpenStreetMap's volunteer community or a traditional commercial mapmaker such as Tele Atlas, which primarily relies on its proprietary mobile mapping van technology, as well as satellite and aerial imagery and other sources.

Of OpenStreetMap, Patrick McDevitt, vice president of community mapping for Tele Atlas, said, "I'm sure for some people and some applications the data they have is sufficient." He noted that his company's data are used for crucial functions such as dispatching ambulances.

OpenStreetMap users say that because their data are collected by people who actually live in a place, they are more likely to be accurate.

"It's the people's map," said Paul Jarrett, director of mapping for CloudMade.