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Ooze Enables Crowdsourced Geospatial Feature and Data Extraction from Imagery

Monday, July 15th 2013

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Summary: [Primordial](http://primordial.com) (http://primordial.com) introduced the beta release of its Ooze geospatial feature and data extraction crowdsourcing platform in early June ([press release](http://www.directionsmag.com/pressreleases/primordial-releases-crowd-sourcing-geographic-information-mapping-platform/334731) (http://www.directionsmag.com/pressreleases/primordial-releases-crowd-sourcing-geographic-information-mapping-platform/334731)). Could this

task management tool, which allows a team of analysts to tease data from imagery and video frames, complete with peer reviews to ensure accuracy, be part of the future of your geospatial data collection? Directions Magazine interviewed David Hemphill, vice president of product at Primordial, to find out.

Directions Magazine (DM): What was the reason for developing Ooze?

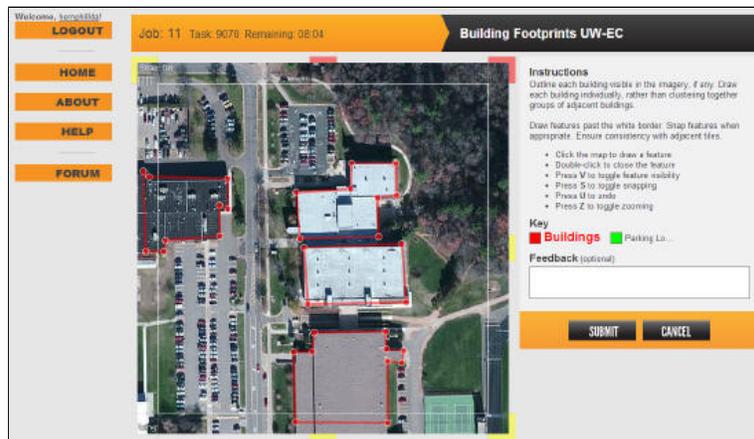
David Hemphill (DH): Ooze was originally developed to create map data for our Ground Guidance software that soldiers use to plan missions and navigate terrain. Many of the locations in which soldiers operate lack quality map data. As we developed the Ooze platform we found that others could use it to create custom or proprietary maps efficiently by leveraging a global workforce. Translating imagery and rasters into vectorized datasets remains an expensive and time-consuming task. Crowdsourcing is a way to lower barriers of both cost and time to generate map data that would otherwise be cost-prohibitive.



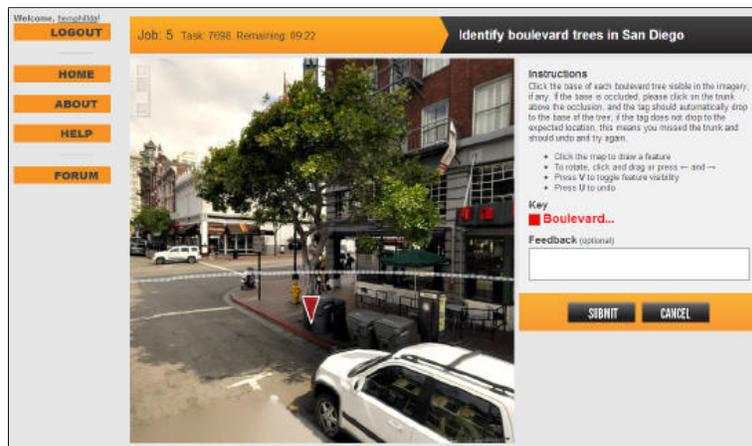
The Ooze login page. Analysts login to perform tasks and clients login to post jobs and monitor progress.

DM: Your platform has tools to trace, extract, tag and measure mapping features from aerial, street view and video imagery. Are they familiar tools from proprietary systems, open source or of your own development?

DH: We developed our own tools, which are entirely Web-based. A key benefit of Ooze is that many people can participate on a job without needing extensive geographic information systems (GIS) training or having to download or purchase GIS tools. Easy-to-use, Web-based tools are important for mobilizing a large crowd. Simplicity is important and we take care of storing the results, organizing the work, and managing the workflows between editing and quality assurance tasks.



Example of a draw task where the analyst outlines building footprints



Example of an identification task, where the analyst specifies locations of trees in a street-level scene

DM: We see Oshkosh (an autonomous vehicle company), Earthmine and the U.S. Army listed as clients. Those are pretty specialized users. Could this be a product for other industries, with more potential customers such as resource management or local government?

DH: Absolutely. Ooze has a lot to offer in a wide variety of markets. We're talking to organizations in transportation, oil and gas, engineering, land use and leasing, and agriculture, just to name a few. In particular, municipalities such as counties and cities are good candidates for Ooze since they often operate under constrained budgets with limited GIS resources.

Ooze provides a way to create custom map data without making a substantial investment in GIS expertise. There are a number of organizations that would like to create and maintain geographic data to provide a unique or competitive advantage to their business. However, creating custom GIS datasets using contracted services or internal GIS staff can be costly. Ooze lowers these barriers for creating and maintaining custom map data, opening new operational or analytic capabilities that might otherwise be too expensive.

DM: Who are the analysts, that is, the individuals who do the work? How are they recruited? What, if any, training do they get?

DH: Ooze analysts range from GIS professionals and mapping enthusiasts to students and stay-at-home parents. Our goal is to make basic GIS tasks accessible to everyday people. This gives us a large pool of analysts to draw from.

Each task includes a precise description of what the analyst needs to do. Much of the training today occurs through our peer review process as analysts help and correct each other's work. There is a forum where analysts can connect and ask questions. Primordial staff monitors the forum and answers questions as well. A future version of Ooze will include enhanced training capabilities such as tutorials, visual samples of correct and incorrect tasks, and qualifying tasks that an analyst must complete before working on a job.

DM: Another platform that offers something like this service is Amazon's Mechanical Turk (MT). Why would a client use Primordial's Ooze over MT?

DH: We originally tried using Mechanical Turk to crowdsource geographic data but quality was an issue. We found it was difficult to provide adequate quality assurance coverage in the task workflow. Based on our experience, we determined that it is necessary to crowdsource both the quality review process as well as the map creation process to produce quality geographic data. There wasn't a good way to crowdsource the quality portion of a job using Mechanical Turk. Ooze implements a patent pending process for queuing tasks with an automated peer review mechanism. The review process both corrects would-be errors in data and serves as a way for analysts to provide feedback to each other. Recently, on a job to outline building footprints, one analyst had encircled all the buildings in a view with a single polygon (instead of outlining each building individually). These tasks were corrected through the Ooze peer review process where other analysts caught the mistake, rejected the work, and provided feedback to the original analyst. Trying to provide this kind of infrastructure within Mechanical Turk was going to require a substantial amount of effort and code on our part, so it made more sense to build a crowdsourcing platform tailored specifically to geographic data.

For organizations looking to generate map data, Ooze is ready to go and does not require any programming or GIS expertise to get started. Anyone can create an Ooze job in a matter of minutes and see results in a matter of hours or a few days depending on the size of the job.

DM: Can you explain the choice of the product name, Ooze?

DH: We wanted a name that sticks in people's minds. Ooze met this criteria and works well with the company name Primordial.

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In reality, the USGS recently changed their earthquake reporting system from good to horrible. Some numbers have been reduced in size to the point of needing a magnifying glass as the new format...

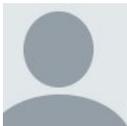
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very interesting article, thanks Mark, I agree there is plenty of room for improvement yet, although those who are involved in location intelligence (I might be one of them, I guess) are doing our...

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Alicia, I am guessing that it may be that it IS ArcMap (new code so new name) but that it would be the first ArcGIS Desktop product that would allow multiple installations. ie you have ArcMap 10.x...

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