



A Race for Precision



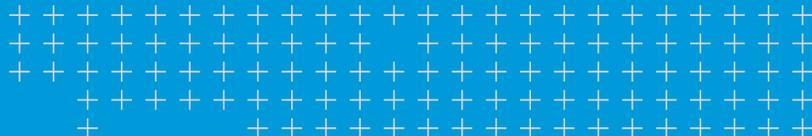
Canadian GIS Team Achieve Accurate Positions in Challenging Conditions.

A lightweight mapping field solution proves a success while navigating difficult environments.

Solution

- ▶ Trimble Catalyst software-defined GNSS receiver
- ▶ Esri Collector for ArcGIS
- ▶ Android smartphone

Find out more: catalyst.trimble.com



overview

Carrying equipment is part of a field tech’s job. But with the introduction of software-defined GNSS receivers, that job may have gotten easier. Crews can now navigate woodland areas and rocky terrain carrying little more than a smartphone. Canadian GIS specialists tested this new technology while bushwhacking their way through a jungle-like site to chart a trail for a cancer fundraiser. It was a project with many roadblocks but they met the challenges in record time.



Location
Ontario, CANADA



CHALLENGE

Dillon Consulting is a professional consulting organization in Ontario, Canada. In addition to its work commitments, the company co-sponsors a ladies-only “mud run” for the Canadian Cancer Society called the “Halton Mudmoiselle.” When the charity organizers chose a new location in 2017 for the event, Dillon saw it as an opportunity to help the organizers while also trying the latest Esri® technology.

“With a mud run, we wanted it muddy,” said Sarah Galloway, a GIS specialist with Dillon. What they got was dense undergrowth, thick brush and a lack of cell coverage that could potentially turn an easy mapping project into a logistical nightmare. Dillon turned to GIS tools such as mobile data collection and mapping to lay out the trails.

The venue was a maple farm thick with trees, Galloway said. She and a group from Dillon and the Cancer Society visited the site four months before the race to see what they could do with the space.

“It was the first time a run had been held at the farm and we were bushwhackers. There was very dense growth so we couldn’t get far in. We also needed to cut through lots of tree cover.”

On top of that, the maple farm was notorious for weak cellular signals. “We thought this would be a great test for Trimble® Catalyst™ and Esri® Collector for ArcGIS® (EAP version),” said Galloway, who had been reading about Catalyst, a software-defined GNSS receiver that works with Android™-powered devices.



Collector for ArcGIS (EAP version) enables improved and informed decision-making by putting mapping and data collection capabilities in the hands of the field worker. “We were wondering if Catalyst would be easier to use and we wanted to test accuracy under such poor conditions compared to other GPS products,” she added. The Mudmoiselle run provided a good opportunity to find out.”

Before heading to the site, Galloway set up a simple online map in ArcGIS Online that could be opened in Collector on both the tablet and cellphone that would track the route and obstacle locations. The Online map consisted of the property boundary, current aerial photo and waypoints.

SOLUTION

“We could compare Catalyst’s performance with our existing Trimble Pro 6H receiver and ArcPad® using corrections from Cansel Can-Net real-time network. The Trimble Pro 6H is bigger and we didn’t need the sub-meter accuracy it provided.” Catalyst can obtain positions in real time with accuracy ranging from meter level to two centimeters. “When you get to the decimeter level, you need clear skies,” Galloway said. “We were wondering if Catalyst would be easier to use and accurate under such poor conditions.” This would be a good way to find out.

The first day of Catalyst performance testing, Galloway and Dillon’s GIS technical lead Jon Fairs hiked the site for four hours. The Catalyst antenna, along with the Pro 6H, were mounted on a Trimble backpack. The Catalyst was connected to Fairs’ Android phone running Collector. The Pro 6H was connected to a Windows® tablet using ArcPad. Fairs and Galloway would later compare their collected data.



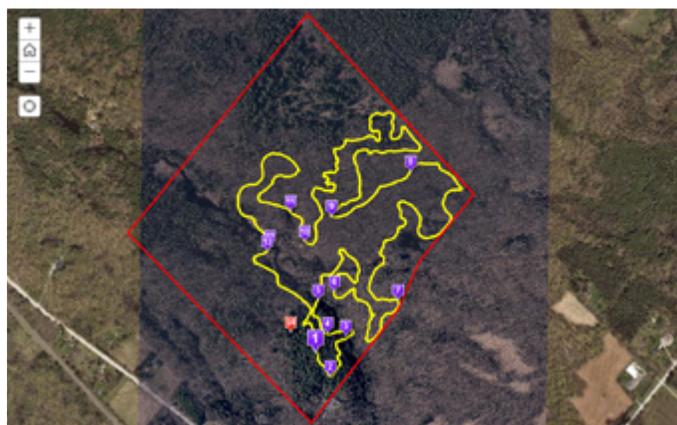


RESULTS

“We flagged some obstacle areas and used downed trees as natural obstacles,” Galloway said. “The race is 5 km and we marked 2.7 km of possible trail with tape and points so we could see where it was when we were back in the office. We were getting centimeter accuracy on both units. Using Collector made it easy for us to view the trail and location of the obstacles once we got back to the office.”

Catalyst performed beyond expectations,” Galloway noted. “It was so lightweight, and it had the accuracy we needed in poor environmental conditions. The added bonus of using smaller hardware made trekking through thick vegetation cover a little easier.”

Galloway shared Catalyst’s AGOL web map with event organizers and participants. The combination of accurate trail layouts and obstacle locations overlaid on current aerial photos (provided by Canadian company First Base Solutions), proved invaluable when creating the race layout. Marking the trail and obstacles as well as enabling the creation of a story map allowed race participants and organizers to view their race day accomplishment. “This was a site with lots of roadblocks but everything was finished in time for the race,” Galloway said. “We are looking forward to using Catalyst in more challenging conditions.”



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Sarah Galloway
GIS Specialist, Dillon Consulting.

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