

# Case Study



## BlackBerry Solution Used for Roadside Surveys on Child Seat Safety

**Company:** The **University of Windsor** in Windsor, Ontario, Canada, hosts a program called AUTO21, a national research network supported by the Government of Canada, Networks of Centres of Excellence program. One of the AUTO21 Teams that focus on Automotive Health and Safety recently completed a National Child Seat Safety Survey in partnership with Transport Canada.

**Industry:** Education

**Region:** Americas

**Company Size:** AUTO21 currently has more than 260 researchers and over 500 student researchers working on auto-related research and development projects at 42 Canadian universities and institutions and supported by more than industry and public sector partners. This project involved approximately 100 students and researchers across Canada.

**Email Environment:** Microsoft® Exchange

**Type of Solution:** Industry Specific Application  
– Custom application for a National Child Seat Safety Survey

**Challenge:** The team was tasked to create a mobile strategy for conducting a National Child Seat Safety Survey across Canada. The researchers needed a solution for AUTO21 students to be able to gather the data and accurately download the data automatically to an analytical database.

**Solution:** A custom, web-based application was created by the AUTO21 team using the BlackBerry Enterprise® Solution already at the university. Students used BlackBerry® smartphones to complete the surveys, which were automatically sent to a database so the results can be analyzed.

**Results:**

- Less time needed to complete surveys in the field
- Saves data entry time and related costs for transporting and entering data
- More robust data and insight into child seat safety
- Can be applied to other uses



Education | Field Force | Business Case Study



## The Challenge:

### Collect Survey Information about Child Car Seat Safety on a Mobile Device

The Government of Canada's leading transportation agency, Transport Canada, conducts a national child seat survey in order to monitor the safe transport of Canadian children. The cost and complexity of running this survey limits how frequently the survey can be conducted. Since, according to the Public Health Agency of Canada ([www.phac-aspc.gc.ca](http://www.phac-aspc.gc.ca)) the leading cause of death in children is road crashes, and Canada's Road Safety Vision 2010 has targets regarding child restraint use, policy makers need to know more about children's safety in vehicles at the national and jurisdictional levels.

Transport Canada partnered with AUTO21 researchers located at the University of Windsor to collect the national child seat survey data. This national survey was part of a larger program of research designed to enhance children's safety in vehicles in Canada.

The AUTO21 project involved sending 75 students out to 200 randomly selected road intersections across the country to observe child restraint use and drivers' use of seat belts. The research team decided early in the process that collecting the data on a mobile device would offer a significant advantage over the traditional pen and paper approach.

"We didn't want to worry about clipboards and pieces of paper getting rained on," says Dr. Anne Snowdon, AUTO21 project leader and Associate Professor at the Odette School of Business, University of Windsor. "We wanted a mobile approach so data would be easily, accurately collected and downloaded into a database, which would save a lot of time and eliminate the cost of manual data entry."

## Why the BlackBerry Solution?

The University of Windsor was already using BlackBerry smartphones, which meant they had the BlackBerry® Enterprise Server infrastructure in place and could use their existing technology. Even so, they considered other wireless devices to help ensure they were choosing the right technology for this important survey.

"The BlackBerry smartphone was ideal because it's light, it only takes one hand to operate and it's reliable and easy to use," says Snowdon. "We knew our students would be standing at road intersections for several hours a day. They needed something with a screen that was easy to read, and allowed them to move around freely, and didn't have a huge learning curve."

Project researchers also wanted to work with a trusted partner and approached Research In Motion (RIM), manufacturer of the BlackBerry smartphone. As the market leader in wireless technology, RIM offers various kinds of support to organizations as they embark on their wireless deployments. For this project, RIM contributed more than 75 BlackBerry smartphones, cellular air time, and access to BlackBerry Technical Support services at no cost to the research team.

"It was an incredibly important component to have RIM's commitment to work with us on the problem-solving technical side and to support our efforts with the contribution of hardware and air time," says Dr. Snowdon.

The research team also decided that learning was an important component of the project. Computer science students at the University were engaged to build the mobile Child Seat Survey and deploy it using the BlackBerry Enterprise Solution.

***"By completing the National Child Seat Survey using BlackBerry smartphones, we've created an easy, more cost-effective way of doing this survey – one where national level data can be collected and updated every few years."***

~ DR. ANNE SNOWDON, Associate Professor, Odette School of Business, University of Windsor

## Long-term Implications

Completing a national survey in a mobile format was ambitious. But this project proved the BlackBerry Enterprise Solution can speed up data collection and give people the relevant information they need to make better decisions in faster time.

Snowdon's team has begun to test this model to monitor patient falls in hospitals. A pilot study is now underway to record information on patients who fall while in care. A mobile survey on BlackBerry smartphones is being used to gather the kinds of complex information that had in the past been filled out by hand on paper.

Since it can take many months to enter this data into a database, the hope is that faster data collection and automated analysis will lead to quicker understanding of patient falls to support evidence-based solutions for enhancing patient safety.

"The World Health Organization was also very interested in our mobile Car Seat Safety Survey because of the immediate data collection element," says Dr. Snowdon. "When there is a health crisis or environmental catastrophe, one of the major barriers to good decisions is accurate data as events unfold over time. A BlackBerry solution can get that accurate information into people's hands when it's most needed."

## More Accurate Data, Faster

The team built their mobile survey based on a three-page, 200 question paper version created in collaboration with Transport Canada. They realized that when a driver is stopped to answer the questions, the surveyor might need to skip over some questions because of the answers given. As a result, the survey was designed with a logical sequence of questions that is flexible enough to ask drivers only the necessary questions, and speed up the survey completion time.

"When you stop a parent who is driving a car, they don't have the whole day to stand there answering questions," says Dr. Robert Kent, Professor of Computer Science. "Our mobile survey allows the student to skip from question six to 16, if appropriate, and make the best use of everyone's time. That means fewer people opt out of answering the questions because the process is fast."

A major success of the project has been how quickly data can be collated and analyzed. Before, paper surveys had to be checked for accuracy and manually input into a database. The process of checking and inputting the data could take up to two years to complete.

Dr. Snowdon estimates that the BlackBerry solution means they could now generate a similar final survey in five months, instead of up to two years – the time it used to take to get the data collected, entered into the data files, analyzed and published. The student clicks on a URL on the BlackBerry smartphone, completes the survey, and it's automatically sent to the back-end database where it goes into a complex statistical analysis tool. Most manual administrative effort is removed and no one has to check handwriting to ensure the accuracy of information.

The team also believes they have a tool that creates much more robust data. "We created a 50 page report for Transport Canada that provides a complete analysis of the national survey which provides important information to support policy and program development for meeting Road Safety Vision 2010 goals nationally," says Dr. Adbulkadir Hussein, Assistant Professor of Mathematics and Statistics and the person who created the statistical analysis tool. "The BlackBerry solution shortens the data collection time and gives us such diverse information; we now have data that we can analyze from so many more angles which will help us to understand all dimensions of the issue. It was also a big advantage to include a logical error function, so that the data was checked as it was submitted."

## AUTO 21's Results

**Less Time to Complete Surveys:** A flexible digital survey, on the lightweight BlackBerry smartphone, means students are completing surveys faster – using up less of the survey subject's time and enabling a larger sample size to be gathered.

**Saves Data Entry Time:** It now takes only four to five months versus two years to generate a complete report on national child seat safety. The reason: survey data is sent directly from the BlackBerry smartphone to the back-end database, eliminating the data entry component and facilitating automated entry into the statistical analysis package.

**More Robust Data:** Making it easier and faster to access the data means the team can create a more detailed statistical analysis tool. They extract better data, in more variations, to help the government form a better informed and thorough child seat safety plan.

This material, including all material incorporated by reference herein or made available by hyperlink, is provided or made accessible "AS IS" and "AS AVAILABLE" and without condition, endorsement, guarantee, representation or warranty of any kind by Research In Motion Limited and its affiliated companies ("RIM") and RIM assumes no responsibility for any typographical, technical, or other inaccuracies, errors or omissions in this material and shall not be liable for any type of damages related to this material or its use, or performance, or non-performance of any software, hardware, service, or any references to third-party sources of information, hardware or software, products or services including components and content such as content protected by copyright and/or third-party web sites (collectively the "Third Party Products and Services"). When you subscribe to Third Party Products and Services you accept that: 1. It is your sole responsibility to: (a) ensure that your airtime service provider will support all features; (b) identify and acquire all required intellectual property licences prior to installation or use and to comply with the terms of such licences; 2. RIM makes no representation, warranty or guarantee and assumes no liability whatsoever in relation to Third Party Products or Services.

**Can be Applied to Other Uses:** The ability to collect complex data and collate the information using the BlackBerry Enterprise Solution can help other industries, such as healthcare, or be valuable in times of environmental crisis when fast accurate data is crucial to making sound decisions.

For more information on BlackBerry solutions, visit [www.blackberry.com/go/success](http://www.blackberry.com/go/success)

*"One of the major advantages of using BlackBerry smartphones is the ability to do rapid on-the-spot data collection and analysis. It allows you to make good decisions on data that is very current."*

~ DR. ROBERT KENT, Computer Science Department, University of Windsor

Certain features outlined in this document may require a minimum version of BlackBerry Enterprise Server, BlackBerry Desktop Software, BlackBerry Device Software and/or additional RIM/BlackBerry software. Check with service provider for availability, roaming arrangements, service plans and features.

The limitations and exclusions herein shall apply irrespective of the nature of the cause of action and in no event shall any director, employee, agent, distributor, supplier or independent contractor of RIM have any liability related to or use of the material.

©2008 Research In Motion Limited. All rights reserved. BlackBerry®, RIM®, Research In Motion®, SureType® and related trademarks, names and logos are the property of Research In Motion Limited and are registered and/or used in the U.S. and countries around the world. Microsoft is a trademark of Microsoft Corporation. Oracle is a registered trademark of Oracle Corporation and/or its affiliates. All other trademarks are the properties of their respective owners. MKT- 17791-001