



IoT to prevent snowy episodes which cripple major cities?

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If snow is a bargain for ski resorts, it represents a real nightmare for major cities for which it is more used as a synonym for blocked cars and economic cripple as have shown last snowy episodes of December 2017 including in Lyon, France.

Although cities have a set of measures for maintenance and reinstatement of traffic conditions (known as « Winter road maintenance ») it is not enough. To function, these measures mostly rely on information from weather monitoring models which are coupled with a set of predictive scenarios. Modelling and predictive systems which are inherently not located enough and don't sufficiently exploit the observation data to be used in an effective way.

Furthermore, these measures are very expensive for the municipalities: for example, the French Interdepartmental East Roads Directorate spent around 5 million euros (excluding personnel costs) during winter in 2015/2016 which wasn't that hard.

But how is it still possible that in the Smart Cities era major cities are still surprised by such events?

IoT to locally anticipate better

To maintain traffic conditions and better preserve environment by limiting the use of salt and other derivatives, the watchword is: "location based anticipation". To anticipate in a located way, cities need to be able to define which salts or derivative products they can spread at the best moment, not too early neither too late to make this operation locally effective against icing or to avoid that snow stays on the ground in the very necessary areas.

With the advent of Internet of Things (IoT) technologies of information and communication provide a cost-effective mean for anticipation to mesh a large territory in an extremely detailed way to measure continuously and monitor in real-time.

It is possible for example to install wireless and miniaturized smart sensors at strategic points to measure continuously road surface temperature or air humidity. Operators access these data via Internet and follow in real-time the evolution of temperature and humidity curves to monitor "dew point" also called "frost point".

Economic and environmental issues

The roads network is unquestionably one of the mainstay of our economy! The maintenance in operational condition of roads infrastructures and of the urban roads networks is possible today by the combination of IoT and "winter road maintenance" programs while optimizing human and material deployed resources. The report of data in real-time added to weather agencies, enrich the decision-making process for municipalities to react faster face to very often located phenomenons. The reliability, the accuracy and the immediate character of the information gathered thanks to these new IoT based systems confer a bigger agility.

Finally, the aim is to optimize the usage of material and human resources while limiting the consumption of deicers for a better control of the program costs.

It is time to stop theorizing about what IoT can provide to cities and specifically use new technologies to improve citizens' daily lives. Simple and reachable solutions exist to really go into the advent of the Smart City, especially with regard to weather crises. It's up to cities to seize this opportunity. The ball is in their camp!

¹ Source [Winter Road Maintenance 2017/2018](#) - Rhône Department

² [Winter Road Maintenance 2016 Press Release](#) - French Interdepartmental East Roads Directorate

* About HIKOB: www.hikob.com - @hikobnews

HIKOB designs wireless, stand-alone, multipoint field data acquisition systems that capture data about the use or the environment of the assets on which they are installed.

They actuate in real-time automated operations and maintenance processes to increase efficiency and responsiveness and inform managers and operators to enlighten decision-making.

Through its INSTANT product range, HIKOB offers wireless vehicle detection systems.

Based on wireless magnetometer sensors and temperature and humidity sensors, they provide real-time data for parking management systems, parking, regulation and monitoring of urban traffic.

The SENTINEL service offering is based on a hardware and software platform and expertise to integrate and implement the benefits of IoT technologies or to develop new OEM products and customized monitoring projects.

This offer responds to the needs of anticipating, exploiting and sustaining infrastructure, industrial assets and equipment and gear.

Based in Lyon and Grenoble, HIKOB develops and manufactures its products in France and has an international presence through a network of business partners and resellers in Europe, North America and Asia.