



CommSense System

The innovation, termed CommSense, is a sensor system that utilises established communication systems to monitor changes in an environment. The technology has the potential to detect incidents such as traffic conditions, floods, fires, insurgent activity, crop growth, etc.

The key novelty of the technology is that it uses the pilot or reference signals in consecutive received communication signals to accurately estimate the changes in the channel state (also known as fading channels) that occur as a result of a change in the environment, and correlates the fading channels to predict the actual change event. The system can also be trained to potentially distinguish between different change events within a known scene, e.g. one train entering a station, compared to two trains entering a station in parallel.

Benefits

- It can potentially be used in any communication system like GSM, 3G, 4G, LTE, and even TV broadcast signals, thereby broadening the scope of its application
- The system has the potential to make sensor systems available for applications that extend beyond conventional military uses to civil society, at substantially lower costs
- It can be trained to identify specific events in a varying area allowing it to potentially be more robust and less sensitive to environmental changes

Applications

- Detecting of moving objects such as aircraft, vehicles, animals, humans via the reflections from the surface of the target
- Application in defense & aerospace sectors, and for border control, coastal surveillance, homeland security, protection of assets, particularly in remote regions or developing countries

Market

The ideal commercial partner would be a large, multinational aerospace and defense company with interests in developing economies. Other potential partners include government bodies responsible for Coastal Surveillance, Border Control and Homeland Security.

Technical description

The invention is a symbiotic radar and communication system that includes a number of base stations in communication with a wider communication network. Each base station is able to transmit and receive communication signals to and from a number of user terminals, and the system is able to perform communication data processing and radar data processing on received signals.

Keywords:
Sensor system, system monitoring

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Intellectual Property Rights:
PCT: PCT/IB2016/052235

Technology Readiness Level:
3 - Experimental proof of concept

Contact:
Francois Oosthuizen,
Project Manager,
Research Contracts &
Innovation,
University of Cape Town

francois.oosthuizen@uct.
ac.za
www.rci.uct.ac.za

The inventor is Amit
Mishra.