

# New research could help protect frontline troops

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A team of researchers at Queen's University Belfast's Centre for Secure Information Technologies (CSIT) is working to develop futuristic communications systems that could help protect frontline troops.

Building on work completed recently for the UK Ministry of Defence, the project is aimed at investigating the use of arrays of highly specialised antennas that could be worn by combat troops to provide covert short-range person-to-person battleground communications.

The project could lead to the development of advanced wireless systems that would enable small squads of soldiers to share real-time video, covert surveillance data and tactical information with each other via helmet mounted visors.

The equipment would bring major benefits to members of the armed forces by providing high levels of situational awareness in hostile environments as well as helping to preserve the element of surprise in close encounters with an enemy.

Details of the project appear in the most recent edition of *IEEE Communications Magazine* - one of the most authoritative international academic publications in the field.

According to lead researcher, Dr Simon Cotton of CSIT's Radio Communications Research Group, it is the seventh article the team has published on the topic in leading academic journals since the beginning

of 2009.

"This is a major achievement and underlines the fact that the group is now a recognised international leader in the area of Body Area Networks (BANs). Our paper in *IEEE Communications Magazine* is also the first to be published on Body-to-Body Networks (BBNs)," says Dr Cotton.

"Through our work, we aim to overcome some formidable challenges as the proposed wireless devices will be expected to operate in a range of environments much more exacting than those encountered in civilian life.

"Despite this, they still need to be extremely reliable, efficient and resilient to 'jamming' or interception and decryption by enemy forces

"Our job is to help make them a reality by modelling how the devices would work in real life; how the signals would be transmitted to and from the body of each user and what types of antennas would be required to allow them to function properly.

"To do this, we are modelling specific combat scenarios using state-of-the-art animation normally used to create computer games.

"We believe that ultimately this work will lead directly to the development of new applications not only for the military but also for the emergency services and the sports and entertainment markets," adds Dr Cotton.

Source: Queen's University Belfast

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