Welcome Message from the Chairs

On behalf of the organizers, we extend a warm welcome to the third ACM MobiHoc workshop on "Airborne Networks and Communications" to all participants. Airborne networking has emerged as an important research discipline over the past few years. This workshop series is created to encourage fundamental as well as applied research in this important domain. It is a result of the ideas that emerged from the meetings held over the past several years on topics that focused on cyber-physical systems (CPS) for transportation. We believe that this workshop gives us an opportunity to discuss state-of-the-art, share our research results with our peers, and develop directions for future research in this emerging field.

Research and development work in airborne networking and communications has been limited to military domain until a few years ago. However, over the past few years, the industry, federal organizations, and universities have started exploring the civilian applications of aerial networks, especially networks involving unmanned aerial vehicles (UAVs) or unmanned aircraft systems (UAS). UAVs have already proven to be efficient and economical in many applications including border and port surveillance, earth and atmospheric studies, monitoring events such as forest fires, protecting critical infrastructure, and environmental monitoring, among others. With the proposed integration of UAS into National Airspace System (NAS) by FAA, numerous other civilian applications including pipeline patrol, law enforcement, cargo delivery, border patrol, and critical infrastructure protection are being envisioned. The use of UAS leads to significant cost benefits in such applications.

Before UAS can be deployed in the civilian airspace, there are significant challenges that we as a research community need to tackle. Enhancing situational awareness, sense and avoid, safety and security capabilities, and improving vehicle autonomy are the most important among these challenges as discussed in the recent workshop on Transportation CPS that was held in January 2014. In addition, as emphasized in the same workshop, there is also a need for experimental flight tests to demonstrate the safety and security of people in heavily populated areas.

During this workshop, we will hear from researchers around the world who are currently engaged in research activities related to airborne networking and communications. The topics include experimental test-beds, routing protocols in tactical airborne networking, and exploring data mule concepts in UAV swarms. The papers showcase the state of the art in UAV networking and communications, demonstrate the challenges in designing real-world applications involving airborne networking and communications. We encourage the readers to take a look at the special issue of IEEE Communications Magazine on enabling next-generation airborne communications that was published in May 2014.

We would like to thank the National Science Foundation for supporting this workshop.

Regards

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