Talking with Rugged Computing Industry Leaders:
Emerging opportunities and synergies between rugged mobile computing and drones/unmanned mission technologies

Periodically, we ask industry leaders in the rugged computing and communications market questions about their products, their views, and their opinions on trends, emerging technologies and a variety of other issues. In this segment we're talking with RuggON, a rugged mobile technology pioneer and innovator in advancing the state-of-the-art in rugged mobile technology solutions, about the synergy between rugged mobile computers and drone/unmanned mission technologies.

RuggedPCReview: Do you see some specific applications where drone/rugged tablet integration could address unfilled needs and provide new market opportunity or better, more cost-effective solutions?.

RuggON: Opportunities in combining drone technology with ruggedized computing gear are pretty much unlimited! Let me give you some examples.

For law enforcement, drones can be their eyes in the sky. In Florida drones are taking an increasingly larger role at some Sheriff's Offices. They help in documenting crime scenes, communicate with remote suspects, finding missing people and assisting with routine problems.

There are numerous examples of merging rugged and drone technologies in fire fighting, forest services activities, surveying of inaccessible areas, remote mapping and so on.

Add to that deployments in maritime inspection, asset management, damage assessment, search and rescue, and it's easy to see many more. There are numerous applications in port management and construction, cargo stowage and transportation, and other hydrographic tasks where the combination of drones and rugged computers vastly extend the reach of technology.

Mining is another area where we see a lot of potential. With the advent of depth-sensing and LiDAR cameras, areas dangerous to manned exploration can fairly easily be reached, assessed and surveyed with drone-based systems.

Geological, geophysical and geochemical engineers likewise can greatly benefit from innovative uses of LiDAR and GIS-equipped drones in combination with powerful computing gear that can stand up to rough handling and harsh environments.

Now add to that the almost endless number of use scenarios in military and commercial applications and we are literally talking about a full-scale revolution in the use of advanced, yet relatively easily procured and implemented technology.

RuggedPCReview: RuggON has been mentioning the use of unmanned technology in conjunction with rugged tablets. Overall, what synergy and value-added do you see between rugged computing equipment and drone technology?

RuggON: Unmanned technology helps crews and teams to reach otherwise unreacheable or difficult-to-reach areas for mission-critical applications in perilous environments. Rugged computing equipment can bring vast multi-tasking processing power, comprehensive communication technologies, and all the necessary I/O into such areas. That really wasn't possible before.

RuggedPCReview: Most current drone systems come with their own controllers and some use smartphones as displays. Most drones are equipped with cameras and can provide both live-view as well as live-streaming. Where do you think the rugged tablet value-added comes in?

RuggON: Smartphones are mostly commercial off-the-shelf solutions with the obvious advantages that they are less expensive compared to customized rugged solutions and easy for mission operators to get on hand with less training.

However, they also have their disadvantages and this is where rugged tablets can come into play. For example, screen size is an issue with GPS mapping and 3D image model applications.

Those all require displays much larger than those of a 5- or 6-inch smartphone. And smartphones usually come with just one USB Type-C port, which is not always sufficient.

Rugged tablets have extensive connectivity and onboard I/O. They are suitable for complex missions and they can even serve as command centers.

Even in protective cases, smartphones cannot be considered rugged solutions, especially not compared to dedicated rugged tablet computers that have been rigorously tested and certified to all sorts of military standards.

RuggedPCReview: Has RuggON begun working with customers on projects related to unmanned technology? If so, what has been the experience so far?

RuggON: Yes. Our tablets have been used as controllers for UGVs in military missions for long-range surveillance and imaging. We pride ourselves in our ability to design *and* manufacture customized systems and accessories, and then properly support them no matter when and where.

As has been demonstrated at a recent maritime accident, a combination of drones and rugged tablet computers can be very valuable to conduct loss inspections at sea.

Likewise, such combined solutions are now being explored and adopted by first responders in emergency rescues, public safety operations, and also in the mining industry for things like tunnel assessments with the help of LiDAR and GIS.

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RuggedPCReview: Do you see RuggON 's role as just the rugged tablet hardware provider, or will you offer hardware/software solutions and perhaps customized turn-key solutions?

RuggON: RuggON is offering rugged solutions ranging from vehicle mount computers, mobile data terminals and tablets, all of which all come with our value-added DashON and RuggOTA utilities, and we also supply a diverse range of accessories including UHF RFID readers, 2D barcode readers, NFC+SMART card readers, detachable keyboards, hard handles, etc. Including drone-related hardware and services is definitely within our range of capabilities.

RuggedPCReview: The term "drone" is used for anything from inexpensive toys to semi-professional and professional models, and all the way to large unmanned aircraft. Which type do you see most suited for use and integration with rugged tablet technology.

RuggON: Drone technology has come a very long way, and it's amazing what relatively low-cost drone technology can do these days. Drones hardware is very scaleable and we're seeing them in a wide range of industrial unmanned applications. For the applications we're seeing, you're talking about professional grade hardened drone tech.

RuggedPCReview: What challenges do you see in making drone-assisted and drone-based solutions feasible (like battery, weight, cost, rules and restrictions, vulnerability, etc.) How can RuggON help addressing them?

RuggON: Battery life and durability is the number one concern for mission operators out in the field. On the computer side, RuggON's focus has been on extending tablet operating time by lowering and optimizing battery power draw, monitoring battery health and status with our preinstalled DashON utility, complementary hot-swap design, and using the best possible batteries available to sustain an entire mission.

Overall equipment weight is another critical issue as it can directly affect mission performance and success. RuggON is fully aware of that and has always strived to minimize the weight of our tablets via good design as well as integration and strong but lightweight materials.

Both battery and weight, of course, play a very major role in drone technology. In those areas drones still are where mobile computers were years ago, and there is much room for advances and improvement.

RuggON specializes in the design and manufacturing of robust and highly competitive rugged mobile solutions. Exceptional technical expertise and dedicated support and service teams allow RuggON to offer great flexibility and value in fulfilling specific customer needs in a variety of vertical markets. The company prides itself in relentless pursuit of innovation and extensive industry knowledge to bring MIT (Made in Taiwan) quality and reliability to all customers. RuggON seeks to exceed the client expectations with the kind of quick response and laser-sharp focus on shifting market demands that leads to lasting success.

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