Communication Solution – Disaster Management

Executive Summary

Wistron AiEdge's communication system for emergency response is easy to transport, quick to setup and operate. The system enables video streaming, voice and high-speed data transfers even from remote locations where cellular networks are unstable. The core technology is based on multi-SIM bandwidth aggregation algorithms on the Edge.

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Objective

To design an advanced communication system in railways for emergency response that is easy to use by first responders. This would replace existing VSAT based solutions that are bulky, have lower bandwidth capacity and have constraints in supporting video streaming.

Challenges

Existing solutions are based on VSAT technology and have several constraints:

- They are bulky weighing ~600kg and difficult to transport. It requires 5 people to setup and operate
- It takes about an hour to setup and requires AC power to operate
- VSAT systems are not reliable during heavy rains
- The hardware and spectrum used is expensive

Solution & Approach

- Wistron AiEdge provides robust, boosted and reliable connectivity for live video streaming, voice and data applications
- It works on patented Universal Bonding technology which is based on Edge computing and leverages AI & ML
- The edge gateway is a light piece of hardware that has 4 SIM slots and can aggregate bandwidth from any Telcos
- It uses a portable battery pack that powers the equipment for upto 15 hours
- UBonding Software provides flexibility to route traffic based on applications and their priority.

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How were the challenges overcome

- UBonding established reliable connectivity between the emergency site and monitoring station. VPN tunnel between locations secured data traffic and information exchange
- The solution uses a Light-weight gateway weighing less than 2 kg that's easy to carry. The gateway and cameras ran on a portable battery pack for 15 hours continuously
- The solution could be unpacked and setup within 10 mins. This is possible because the time taken for cellular connections to latch on and connect to servers is miniscule
- The equipment including the gateway, 2 cameras, battery pack and accessories comfortably fit into an easy to carry back pack

Conclusion

The VSAT based communication system was replaced with a solution that is technologically advanced, provides more features, while being lighter and easier to install. All this at a fraction of the cost of the VSAT solution. The communication solution can be implemented for any disasters.

Result

83%
Decrease in Set-up time

90%
Reduction in Equipment size

4x
Increase in Connectivity options

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