C2TECH

Reliable and Uninterrupted Communication on Armored Unmanned Surface Vehicle

Problem

Reliable, uninterrupted transmitting and receiving of information to military headquarters is the basis for successful operations in today's military. It is important to transmit data and videos from unmanned vehicles without interruption in operations.

Accordingly, the operator in the center will perform various tasks by giving commands to the vehicle. Especially as vehicles with a single communication system move away from the center, they lose their operational capabilities because they lose communication.

Communications in military operations face difficulties both in line of sight and beyond the line of sight. When any blocker enters between the links in the line of sight, there are interruptions in communication.

In addition, beyond the line of sight, limited communication types make communication difficult. In these cases, providing communication by diversifying and combining bandwidth is the guarantee of uninterrupted and reliable communication.

Solution

By using more than one communication channel, uninterrupted and continuous communication is guaranteed by controlling at the packet level even when switching from one channel to another with Modeo.

By combining the bandwidth of Ku Band, L Band, RF LOS and GSM channels, communication is protected by providing lossless, uninterrupted, secure and reliability at the packet level. Since there is no disconnection, there is no need for re-connection scenarios.

Thanks to our safe and reliable scenarios, there is no loss of video, audio, and data to be transmitted. The system can provide more efficient service by performing simultaneous data transfer while transmitting video and audio.

EXECUTIVE SUMMARY

Short Summary

Sector : Military & Defense

Glance

1. Reliable, continuous and uninterrupted communication at Armored Unmanned Surface Vehicle
2. Uninterrupted, reliable military communications

Solution

Uninterrupted and continuous communication over Ku Band, GSM, L Band, RF LOS channels is provided by Modeo's adaptive bit rate and bonding algorithm in Armored Unmanned Surface Vehicles.

Communication channel selection can be made one by one, respectively, according to automatic selection criteria, or it can be made through the CTech patented "Bonding" (channel bonding) and "Adaptive Bit Rate algorithm".

For example;

1. RF LOS. (If within range of unobstructed vision)
2. GSM. (As long as the communication signal level and channel bandwidth are sufficient)
3. CTech SatCom on the move. (If there is no tower in the direct line of sight by staying behind any obstacle, or if the tower is out of the direct line of sight in terms of distance, or if the distance to the tower is beyond the physical communication conditions in direct vision conditions, and the GSM network conditions are not sufficient to provide communication)
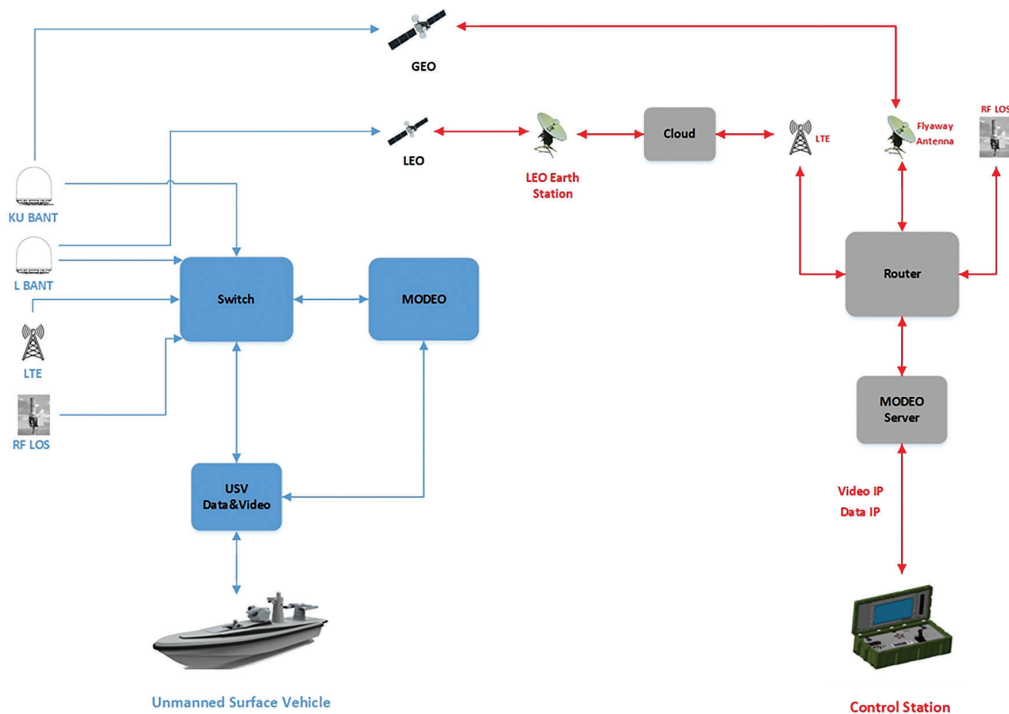4. L Band. (to provide global communication worldwide)

Figure 1: Armored Unmanned Surface Vehicle Communication Diagram with Modeo

If the CTech Bonding algorithm is preferred, channel management can be done automatically, independently of the user.

In addition, a natural obfuscation scenario is operated since the data is fragmented to provide multi-channel transmission and the resolution rate is adjusted according to the line parameters that are constantly followed by the adaptive bit rate algorithm. In this way, an additional level of security is provided to encryption.

In Figure 1, it is provided that the video and data received from Armored Unmanned Surface Vehicles are sent to the Ground Control Station via Modeo using Ku Band, L-band, GSM, and RF Los, and the data is decoded at the ground control station via Modeo Server. In addition, the data sent in light of the data evaluated at the ground control station are also sent to the Armored Unmanned Marine Vehicle via Modeo.