ANATECH ELECTRONICS INC

AT THE CENTER FREQUENCY

An e-Newsletter from Anatech Electronics

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What's News...

New Approach Finds Massive Number of "Dark" Ships

An ocean conservation group is using satellite data and machine learning to find “dark ships” that turn off their transponders to avoid detection, and its results indicate that thousands of fishing and other vessels have been evading tracking for years. While AIS transponders are required on most large ships, they can be disabled or manipulated, and radio or satellite receivers have blind spots. To get a more complete picture, four European Space Agency satellites provided more than 750,000 radar-generated images and nearly 2.5 million optical images of the ocean between 2016 and 2021. The analysis revealed that as many as three-quarters of industrial fishing vessels were not tracked, with high concentrations in Indonesia, south and southeast Asia, and Africa's northern and western coasts.

A Word from Sam Benzacar

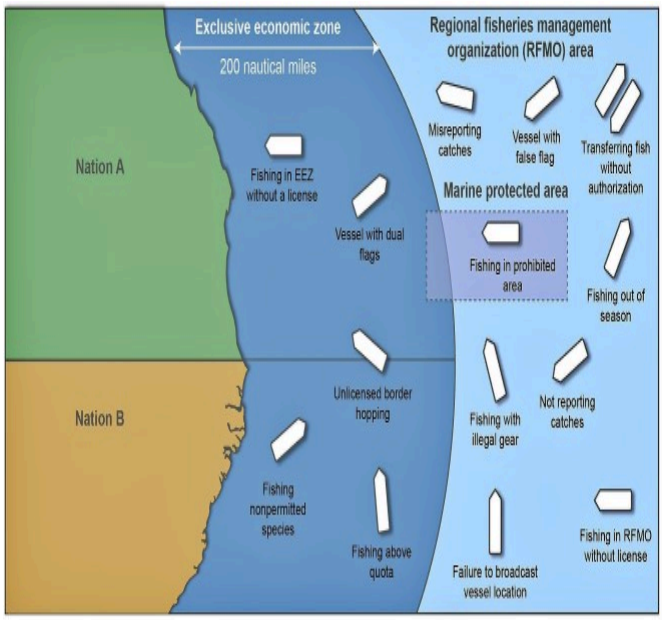
Shadow Warriors: Unmmaned Aerial Vehicles Reshape the Battlefield

By Sam Benzacar

Not all that long ago, if you or I were asked what an Unmanned Aerial Vehicle (UAV) is, we’d think of a RQ-4 Global Hawk or an RQ-170 Sentinel, both massive platforms that operate at altitudes of tens of thousands of feet. Rusia’s war on Ukraine that perception, probably forever, because they’ve been joined and often replaced by inexpensive platforms that the military can afford to lose. In fact, the proliferation of UAVs has created a new arms race, with nations, non-state actors, and insurgent groups using UAVs for asymmetric warfare. The technological advancements in UAVs have not only enhanced the capabilities of armed forces but also altered the fundamental principles of engagement, surveillance, and force projection.

Historically, many of the tasks now performed by UAVS required extensive resources and expertise and posed substantial risk to personnel. But UAVs have shifted this paradigm as they can perform a wide range of tasks, from reconnaissance and surveillance to electronic warfare and targeted strikes without directly endangering human lives. This shift has led to a new form of military engagement, characterized by an emphasis on remote operations and precision.

One of the most significant impacts of UAVs on warfare is the enhancement of situational awareness. Equipped with advanced sensors, cameras, and communication systems, drones can provide real-time data and imagery, offering a comprehensive view of the battlefield. This



SpaceX Launches First Sattelites for Wireless Communications

SpaceX has launched the first six “direct to cell capable” Starlink satellites into orbit from California's Vandenberg Space Force Base. The company says the satellites will provide "seamless access to text, voice, and data for LTE phones across the globe.” The company

says the satellites have more advanced modems that act like base stations in space and plans to use cellular spectrum from its mobile partners, such as T-Mobile, to make the service commercially available. SpaceX has partnered with operators in Australia, Canada, New Zealand, Japan, Switzerland, and Chile, and says messaging will be available first, followed by voice and data.

capability allows for more informed decision-making and precise targeting, thereby reducing collateral damage and improving the efficiency of military operations.

Unlike manned aircraft that are limited by human endurance and operational hours, UAVs can stay aloft for extended periods, providing continuous coverage and support. This persistence ensures that there are eyes on the target area longer, enabling persistent surveillance and immediate action when required. The use of UAVs also brings a strategic advantage in terms of force projection and deterrence as the ability to deploy UAVs in hostile or inaccessible areas allows the military to project power and assert dominance without solely relying on boots on the ground.

However, the rise of UAVs in warfare also presents ethical concerns about accountability, decision-making processes, and the moral implications of remote strikes. The risk of collateral damage and civilian casualties remains a significant concern, despite the precision capabilities of UAVs. Nevertheless, we can expect these small platforms to play a leading role in every conflict in the future.

Turkey's STK Kargu was the first lethal autonomous weapon to attack enemy combatants in warfare.
Source: Wikipedia

We can always find a solution!

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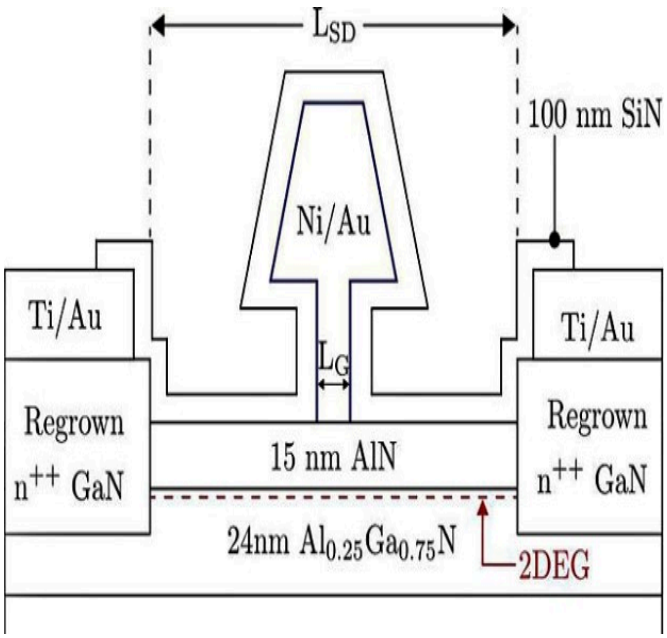
Suit Says RF Caused Disabled Person's Help to Decline

Children's Health Defense (CHD) has filed a complaint against wireless providers on behalf of a disabled person in Idaho that claims the plaintiff's condition has been worsened by electromagnetic radiation emitted from cell sites. It seeks to remove or modify cell towers to provide accommodation as required by the Americans with Disabilities Act (ADA). The plaintiff was diagnosed with Electromagnetic Sensitivity (EMS) in California and then moved to less-populated Idaho to minimize his exposure. However, shortly after, a wireless provider turned on a new site about 660 yards from his home, after which, he claims, his condition worsened. "If the suit is successful, the court will either remove the tower or order the defendants to modify their operations to not so intensively beam RF radiation through his home," according to the plaintiff's attorney.

GaN Transistor Structure Sets Frequency Record

Cornell University researchers say they have achieved a record high speed for an aluminum gallium nitride (AlGaN)-channel transistor from an AlN/AlGaN/AlN quantum well high-electron-mobility transistor (HEMT) structure. The Cornell team reports cut-off and maximum oscillation frequencies of 67 and 166 GHz, breaking the 100 GHz barrier for the first time for AlGaN-channel HEMTs. The power was assessed using a load-pull system at 10 GHz, and power density reached 20% and 2 W/mm with a gain of 5.2 dB at 20% power-added efficiency. Combined with higher performance, AlGaN HEMTs have the potential to deliver systems with higher power density.



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(973) 772-4242

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