



The Computerworld Honors Program

Honoring those who use Information Technology to benefit society

Final Copy of Case Study

LOCATION:
Red Bank, NJ, US

YEAR:
2011

STATUS:
Laureate

CATEGORY:
Safety & Security

ORGANIZATION:

US Army Research Development and Engineering Command (RDECOM), Communications-Electronics Research Development and Engineering Center (CERDEC), Intelligence and Information Warfare Directorate (I2WD), Electronic Warfare (EW) Systems Ground Branch

ORGANIZATION URL:

<http://www.cerdec.army.mil/directorates/i2wd.asp>

PROJECT NAME:

Counter Radio Controlled Improvised Explosive Device (RCIED) Electronic Warfare (CREW) Duke Version 3

PROJECT OVERVIEW

On September 11, 2001, our lives changed forever. The events that transpired that morning changed how we perceive our enemies, and completely redefined the tools, techniques, and procedures necessary to fight the wars of the twenty-first century. As the face of our enemy changed, so did his tools and methods. The next generations of war would no longer consist of large military battles with clearly defined sides and conventional weaponry. Instead, our enemies have resorted to unconventional tactics and improvised weaponry, the most significant of which has been the Improvised Explosive Device (IED), an inexpensive and easily constructed weapon that has resulted in the deaths of thousands of civilians and military personnel in recent years. These IEDs can be initiated in a variety of different ways, the most common of which are Radio Controlled (RC) IEDs. The US Army Research Development and Engineering Command (RDECOM), Communications-Electronics Research Development and Engineering Center (CERDEC), Intelligence and Information Warfare Directorate (I2WD), Electronic Warfare (EW) Systems Ground Branch is at the forefront of developing countermeasures for these devices. The I2WD EW Ground Systems Branch, in conjunction with Product Manager Counter Radio Controlled Improvised Explosive Device (RCIED) Electronic Warfare (PM CREW), have produced the CREW Duke Version 3 system, which provides US forces with critical, life-saving protection against a wide range of threats. CREW Duke V3 is a field-deployable, single-unit system that provides simple operation and optimal performance with minimal size, weight, and power requirements in order to provide force protection against RCIEDs. CREW Duke V3 consists of a primary unit known as the CREW Duke V2 and a secondary adjunct unit that features advanced electronic warfare subsystems to counter emerging advanced-RCIED technologies. Advanced EW components and techniques are implemented to combat complex threat

infrastructures in order to provide a maximum protection radius while minimizing the overall system cost and prime power consumption requirements. To date, over 40,000 CREW Duke systems are fielded on U.S. Army combat platforms operating in support of Operation Enduring Freedom (Afghanistan) and Operation New Dawn (Iraq). The system is a "Top 3" program within Congress, the Office of the Secretary of Defense, and the Department of the Army, because in the world of Electronic Warfare, saving lives is about staying one step ahead of the enemy.

SOCIETAL BENEFITS

The CREW Duke V3 system provides enhanced force protection and survivability against the evolving RCIED threat in theater. The system prevents RCIEDs from detonating, thereby saving US forces from injury and death.

PROJECT BENEFIT EXAMPLE

The main mission, as stated by Mr. Ramon Llanos, I2WD EW Systems Ground Branch Chief, is "to assure that our men and women fighting overseas get back from theater unharmed." The CREW Duke V3 system enables spectrum dominance through force protection of vehicle convoys against the radio controlled initiation of IEDs, or roadside bombs, as they are commonly referred to by the media. The CREW Duke V3 systems have played a significant role in reducing the insurgents' employment of RCIEDs as the preferred weapon of choice. The net result has been a dramatic reduction in combat-related injuries and fatalities due to RCIEDs. Military experts contribute this success to two main initiatives: (1) a change in the training and tactics of the US military, reducing the vulnerability of troops to this deadly threat; and (2) improved threat countermeasure capabilities and systems deployed on High Mobility Multipurpose Wheeled Vehicles (HMMWVs), Mine Resistant Ambush Protected (MRAP) vehicles, and at security checkpoints. The innovation and technology developed by Mr. Llanos' team are directly attributable to the second set of life-saving initiatives. Knowing the exact reason as to why IED attacks have been less successful than in the past can be a challenge. As previously mentioned, changes to procedures, upgrades to armor, and enhanced threat countermeasures have all contributed to this trend. However, the soldiers on the ground understand the impact that the CREW Duke V3 system has had in drastically improving their safety and security while conducting wartime, peacetime and humanitarian operations. On November 29, 2010, Mr. Llanos and his team were recipients of the Army's Greatest Invention Award for 2009 at the Army Science Conference, where CREW Duke V3 was chosen as one of the Army's top 10 Greatest Inventions assessed and chosen by soldiers based on importance and impact. Previously, in 2005, the I2WD EW Systems Ground Branch's CREW Duke V2 system was also chosen as one of the Army's top 10 Greatest Inventions.

IS THIS PROJECT AN INNOVATION, BEST PRACTICE? Yes

ADDITIONAL PROJECT INFORMATION

Counter Radio-Controlled IED EW| CREW Duke V3 "Boys, you were lucky you had that Duke jammer." ~ EOD unit lead Duke V3 is a counter radio-controlled improvised explosive device (RCIED) electronic warfare (CREW) system that was developed to provide U.S. forces critical, life-saving protection against a wide range of threats. It is a field-deployable, single-unit system that was designed to have minimal size, weight and power requirements while providing simple operation and optimal performance in



order to provide force protection against radio-controlled IEDs. CREW Duke V3 consists of a primary unit known as the CREW Duke V2 and a secondary unit that features advanced electronic warfare subsystems to counter emerging advanced-RCIED technologies. Advanced EW components and techniques are implemented to combat complex threat infrastructures in order to provide a maximum protection radius while minimizing the overall system cost and prime power consumption requirements.