2020 TIBBETTS AWARD WINNER

KCF Technologies, Inc.

U.S. Small Business Administration

SBIR·STTR America's Seed Fund™ POWERED BY SBA

KCF Technologies' SmartDiagnostics® wireless sensor products provide predictive condition-based maintenance.

LOCATION

PA
State College

PHASE III SUCCESS

$200M

FUNDING AGENCIES

Air Force
Department of Defense

Army
Department of Defense

Navy
Department of Defense

DoD
Department of Defense

DOE
Department of Energy

NSF
National Science Foundation

Impact & Achievement

KCF Technologies' SmartDiagnostics® family of innovative wireless sensor products enables cost-effective predictive maintenance for industrial equipment that can be found in moving parts spanning various industries, ranging from energy to defense. SmartDiagnostics® features time series and frequency spectrum analysis, powerful alarm and notification capabilities, multi-tiered hierarchy structure that easily accommodates installations with thousands of measurement points, and an open interface to allow machine health data to be passed to a range of software for maintenance and reliability programs. Support is built-in for industry standard communication protocols, leveraging DARTwireless - KCF's highly efficient wireless protocol, optimized to transmit a full dynamic vibration spectrum on a very small power budget.

Since 2000, KCF has developed new technologies, advancing them into commercial products that optimize industrial manufacturing. The agencies that invested in these innovations through Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards provided the foundation for the company to thrive and grow, and its tremendous success can be largely attributed to its successful participation in SBIR/STTR programs. SBIR/STTR participation has uniquely positioned KCF to achieve private-sector commercialization of new, innovative technologies. KCF Technologies embodies the mission of the SBIR program to support scientific excellence and technological innovation through the investment of Federal research funds in critical American priorities to build a strong national economy.

Upstream oil and gas well sites use KCF technology to monitor pressure-pumping equipment, providing continuous remote monitoring of key performance indicators to track the operating health of equipment via a simple, user-friendly interface – including valuable features for expert and novice users alike. For its work with the Army, KCF developed a series of prosthetic and orthotic technologies to support improved functionality for injured soldiers, which began as a STTR project in 2006. In 2015, KCF's self-powered wireless sensors technology moved into procurement for the CH-53K helicopter in collaboration with Sikorsky and LORD Corporation. The sensors are mounted on the main rotor pitch links to monitor stress to the rotor structure, which is communicated to an advanced Health Usage Monitoring System (HUMS). Energy is harvested from the load to power the sensor, enabling battery and wire free monitoring. Since each helicopter experiences operational differences in flight conditions, maintenance can be scheduled based on specific need. Product sales of SmartDiagnostics® began in 2012 and have grown at an average annualized rate of 148%. The company has seen $200 million in Phase III success as a result. The company has established a strong track record of Phase III contracts with the Department of Defense, academia, and industry partners in the commercial market. Today, more than 90% of the company's revenue is from commercial sales.

KCF's predictive condition-based maintenance improves not only productivity, but the safety of millions of American workers across countless industries. The company believes that ubiquitous wireless sensors will continue to offer huge benefits across every manufacturing sector as part of the Internet of Things, and will determine whether manufacturing will "sink or swim" in the digital era.

www.kcftech.com