

ASU Researchers Test Inventors' Coronavirus-Killing Smartphone Technology



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Galileo Group, Inc., an advanced technology, and innovation company specializing in remote sensing services, collaborated with researchers from Arizona State University (ASU) and the Nanotechnology Enabled Water Treatment Center to design, build and test a smartphone attachment, ARMADA™ UV-C, that rapidly inactivates coronavirus from commonly touched surfaces using light in the ultraviolet range.

A recent study by the team proved that light in the UV-C range can be used to sanitize against bacteria and viruses within seconds. ARMADA™ UV-C, [Galileo Group's](#) most recent discovery, is an upgraded custom designed UV-C emitter tested specifically for eradicating human coronavirus from surfaces.

The tests were conducted within an [ASU](#) biosafety level 2 lab and the results were experimentally demonstrated using advanced biological measurement techniques performed by ASU scientists. After a brief exposure to ARMADA™ UV-C, over 90% of the presenting coronavirus could be successfully eradicated. This is considered the gold standard for inactivation processes.

"Within 10 seconds, ARMADA™ UV-C killed a wide range of virus and bacteria on multiple glass, ceramic and metal surfaces, including human coronavirus," said Paul Westerhoff, Ph.D., ASU Regents' professor in the Ira A. Fulton Schools of Engineering who led the project.

"The test results showed major improvement in hygienic conditions due to the large number of infectious viral particles and bacterial cells being inactivated," said Morteza Abbaszadegan, Ph.D., professor and director at the National Science Foundation Water & Environmental Technology Center at ASU, who oversaw the microbiological testing.

"We envisioned a low-cost solution that decontaminates workspaces with shared frequently-touched surfaces, equipment or supplies – easily accessible and in the palm of your hand,"

said Thorsten Mewes, Ph.D., vice president of detection and analytics for Galileo Group.

"ARMADA™ UV-C is a potential game changer for industries like travel, hospitality and even medical providers needing to equip their staff with a small but effective and efficient tool to disinfect surfaces. With the physics and biology now confirmed, we are proceeding with continued engineering approaches to bring our target disinfection time down to a few seconds or less," said Mewes.

The ARMADA™ UV-C device includes a small LED array of UV-C (265 nanometer) light sources bundled into Galileo's patented smartphone booster design, which provides magnetic attachment to an iPhone or tablet.

"We are developing software solutions using advanced machine learning and artificial intelligence techniques that recognize only approved surfaces for disinfection, ensuring safety protocols are enacted and controlled during use of the ARMADA™ UV-C device," said Mewes.

ARMADA™ UV-C is designed for use as a surface disinfectant tool and will incorporate a new built-in AI failsafe capability, turning off the system immediately if a user attempts to emit it against a non-approved object or person, or operate it outside predetermined operating constraints. This will allow germicidal use for many daily operations at close-range point of contact. As an additional benefit, all smartphone operations may be tracked and recorded to provide fleet-management-type capabilities overseeing large-scale facility use and protocol disinfection efforts.

Galileo Group is continuing research and development for ARMADA™ UV-C while seeking business-to-business partnerships and investors interested in participating in series A funding. For more details on experimental research results collected by the team at ASU or for investment information, please contact Thorsten Mewes, Ph.D., at tmewes@galileo-gp.com.

Read the [original article](#) on PR Newswire.