

# Water Disinfection From UNC Charlotte To Western Uganda

University of North Carolina at Charlotte



Getting safe water to areas that lack water treatment infrastructure has been a persistent challenge. Methods such as ceramic filters and pre-packaged water are not sustainable, yet these two methods were the primary solutions for accessible and safe water – until PearlAqua.

PearlAqua is a UV LED (Ultraviolet Light Emitting Diode) water disinfection technology that utilizes Ultraviolet light to inactivate harmful pathogen within water. Its UV technology originated from Aquisense's PearlAqua Micro™ disinfection product. By combining pre-filters for particle removal and UV LEDs for disinfection, it significantly speeds up the process of water purification for safe drinking water.

This LED-based system is compact and does not use chemicals or mercury-based UV lamps. In addition, the system is low powered, making it ideal for off-grid applications that are common in rural areas. Therefore, PearlAqua is an ideal alternative to small ceramic filters, which provide up to only 5 milliliters of water an hour, or the expensive and economically constraining pre-packaged water.

The University of North Carolina at Charlotte (UNC Charlotte) originally developed the UV flow cell technology and assisted in the development and licensing of the disinfection system. The project originated as a spin-out company, Dot Metrics Inc. started by a UNC Charlotte PhD student Dr. Jennifer Pagan. The spin-out company partnered with UNC Charlotte for research assistance and rented out space on campus for the team to conduct translational research. To allow the company to focus on product development the university receives royalty payments of product sales, instead of larger upfront cash fees.

After ten years of being a product research company, Dot Metrics was acquired by UNC Charlotte's licensee, AquiSense Technologies who ultimately introduced PearlAqua to the market.

Now, AquiSense Technologies has partnered with the African STEM Education Initiative (ASEI) Uganda, a social enterprise focused on developing Africa by incorporating university innovations, including PearlAqua. Since first being created at UNC Charlotte, the development of PearlAqua has spread to Hapuuyo Health Center III and Kyegegwa Hospital in Western Uganda.

AquiSense Technologies has operations in North America, Europe and Asia, with PearlAqua installations on all seven continents, plus the International Space Station. The PearlAqua product platform provides greater accessibility to clean water in many applications from Western Uganda and beyond..

About AquiSense Technologies: [AquiSense Technologies](#) is the global leader in UV-C LED systems design and manufacture. They work with leading LED manufacturers to evaluate their devices and then design efficient disinfection products. Using a combination of patented technology and in-depth know-how, AquiSense integrates LED devices into products that solve real world problems in water, air, and surface applications.

This story was originally published in 2024.

**To see available technologies from research institutions, [click here to visit the AUTM Innovation Marketplace.](#)**

Share your story at [autm.net/betterworldproject](https://autm.net/betterworldproject)

[#betterworldproject](#)