

# VPG Medical uses unconventional tech for heart care

By GINO FANELLI

Among the companies in the Luminate NY accelerator, VPG Medical Inc. is a bit unique.

While most companies in the accelerator are based around developing hardware products in the optics, photonics and imaging space, VPG is a software company, developing a platform that can be used with built-in smartphone, tablets and computer cameras. In a software atmosphere where virtually every possible use of a phone's capabilities has been explored, it's tough to imagine what kind of tech a company could produce to put them in the largest optics accelerator in the world without even having a physical product.

That is, until founder and CEO Jean-Philippe Couderc explains just what they do.

"What is quite amazing about this technology is that it uses the embedded camera from the smart devices to capture the electrical activity of the heart," Couderc said. "It actually detects subtle changes in the color of your skin that occurs each time your heart beats."

The VPG tech is something that's based around a strange fact about the human body: each time your heart beats, your skin changes color ever so slightly. This is due to an influx of hemoglobin entering the skin as the heart pumps blood in, which reflects a greener hue, and between each heart beat that color fades out. This change is imperceptible to the human eye but cameras can see it, and VPG's technology goes a bit further as a diagnostic tool, compiling averages and reports that can be indicative of the current situation of a heart patient.

"Once you have this technology on your device, it works forever," Couderc said. "This is a new way of monitoring patients, and with most technology that exists today, you need to buy equipment, a watch or something that can be very expensive. We don't need that. It's a software—you download it, you install it and you're covered for the rest of your life."

Short for Videoplethysmography, VPG was born from research conducted at both Rochester Institute of Technology and the Univer-

sity of Rochester and was first incorporated on Dec. 27, 2017. Since then, the company has participated in two other incubators; Buffalo's LaunchNY and Dana Point, California's BioComX. The company is partially funded through the National Institutes of Health's National Heart, Lung and Blood Institute.

While Couderc touted the tech's abilities in heart failure monitoring, the possibilities, he said, go far beyond that, from diabetes to hypertension and outside of medicine altogether.

"We're in the healthcare application, but there are many other applications," Couderc said. "People want to use it for cyberbullying on social networks. Imagine if you have kids (who) go on Twitter or Snapchat—we can measure their heart. If they're being bullied and their heartrate goes very high, we can detect that."

VPG is currently undergoing a clinical trial at Strong Memorial Hospital that is aimed at capturing both heart rate and atrial fibrillation, or AFib. AFib is a condition in which the upper chambers of the heart, the atria, are out of sync with the lower chambers, the ventricles, which in turn can lead to heart palpitations.

The clinical trial is funded through the National Institutes of Health.

"This is not a prototype, this is a working technology that is being distributed to patients in our community today," Couderc said. "It's not FDA-cleared, so that's really our next step, to generate enough data to show the FDA this is actually working."

As a software with enormous clinical potential, Couderc wants to make sure rollout doesn't get buried in the App Store or Google Play. Rather, once FDA clearance is received, VPG will focus on garnering clinical partners that can essentially prescribe the software to patients. While not a replacement for an actual doctor, the tech can serve as an effective intermediary, collecting data, building reports and giving insight the doctor may not otherwise have.

HIPPA compliance is probably the biggest hurdle for FDA clearance and clinical application. While the software relies on a device



Couderc

camera to function, it does not record or save any videos.

"It does not take video of your face, it does not keep video of your face," Couderc said. "As soon as the information is acquired, the video is deleted."

VPG finds itself in a unique place in Luminate NY as a software company, but nonetheless, Couderc said it's benefiting from the same resources as every other company at a critical time in the its life. With the clinical trial ongoing, FDA clearance could then take another year. In the meantime, VPG is developing the business roots to carry on operation as its market opens up.

"When you start a business, you don't realize that you're not doing only technology, you're not doing only medicine, you're not doing only finance, you're doing everything," Couderc said. "And you cannot be good at everything. You can know a little bit of everything, but being good at everything means you've had the opportunity to talk to people who have done these things for years."

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