



An interview with Kevin Dowling, CEO of KAARTA

What does Kaarta mean and why you choose this name for your company?

Kevin Dowling: The name 'Kaarta' is a phonetic reference to cartography, the science or practice of map making, and all things cartographic. Kaarta, the company, is all about mapping and localization. The name – with the extra a added for effect – captures the company's pioneering take on mapping to produce 3D models in real time. The name is not about the technique we use, it's about the problems we solve.

Kaarta is a relatively recent company, but has grown a lot in recent years. What is your magic potion?

There's little that is magical about growing a company. It's a lot of time, effort and

plain hard work, but if anything is our magic potion it would be the core algorithms and approaches to solving a long-standing problem of figuring out where you are and what is around you. It's a hard problem and many groups have attempted to solve it. There is no simple closed-form solution. It is truly a chicken and egg problem: Kaarta uses the world around us to figure out where we are while using where we are to figure what is around us. That's both magical and bewildering!

Kaarta is specialist in real-time mobile 3D reality capture. Which is the core business of the company?

Capturing the real world as a 3D digital representation is important, and Kaarta does it quickly and ac-

curately. But that is just the first step of what Kaarta does and what customers ultimately need. Kaarta's core business is helping our customers get to the representation of the world that they need. This might be a floor plan, a 3D model, tagged and labelled assets and more. It starts with data capture and ends with a model, or a plan, or a decision.

What are your best product and why?

We have several products that are suitable for different applications so it's hard to say what is best since each product is tailored for particular needs.

- Contour - Simple handheld indoor reality capture. Fast and you can see results in real-time on an easy-to-use touch screen.
- Stencil 2 - Long range, lightweight, can

be flown, carried, or driven. 100m range in all directions. Two flavours of lidar -16 and -32 line for the best quality.

- Stencil Pro - The flagship - rugged outdoor or vehicle scanning yet can be carried when needed. Integrated GNSS, Rugged IP65 rating, 200m range, and four 4K HD cameras provide real-time panoramic views.
- Kaarta Cloud - Post-processing made easy, visual, and collaborative. Kaarta Cloud even works with raw data files direct from lidar.
- Kaarta Engine - Mostly licensed to robotics companies for robot localization and mapping. Easily integrated and interfaced into customer systems.

Now you can see why there are multi-

ple 'best' products. They each serve their markets well!

Kaarta recently introduced Stencil Pro. Users who have tried it have called it amazing: what is the secret of this MMS?

Stencil Pro is a turn-key system advancing next generation mobile surveying. It is a new class of product for Kaarta, and for the industry as a whole. It marries the speed and ability to work in GNSS denied areas of a SLAM-based system with the distance and accuracy of a traditional mobile mapping system, at a fraction of the cost. Stencil Pro offers a fully integrated seamless design that incorporates an advanced lidar with 200m of range in all directions, four 4K HD cameras to provide images that can be made into panoramic images. It offers a high quality Trimble GNSS with corrections capabilities, an excellent antenna, and a path to further upgrades. Also, a fully-integrated IMU is used for building accurate trajectories and therefore point clouds. Stencil Pro is also made for tougher environments and is rated IP 65. It's not so much a secret as a lot of effort to make a great product.

What will be the role of SLAM technology

and Mobile Mapping in the creation of a digital world in the future?

[The last question is completely open. We would like to understand how your company is contributing to autonomous robots. If you are developing particular sensors for autonomous robots, maps that are used by robots, SLAM for robots or new algorithms that allow robots to improve their ability to positioning, avoid collisions or make quick

SLAM solutions enable many new and novel realms of capture, modeling, planning, and assessment. Because of the speed of SLAM and ever improving accuracy sufficient for all but the most stringent applications, the world can be modeled rapidly from the air, from vehicles, by people and by robots. Applications including subsurface and new multi-sensory capabilities will help

of understanding of spaces for humans and autonomous machines alike.

Kaarta Engine is a set of purpose-built 3D mapping and localization algorithms that artfully solve the simultaneous location and mapping problem of both capturing what is around it (mapping) and where it is in that environment (location). Kaarta's unparalleled expertise in localization – a result of our deep robotics roots – is fundamental to our patent-pending approach to solving the SLAM problem, reducing drift error of other SLAM systems by an order of magnitude.

Kaarta Engine is at the heart of our Stencil and Contour products, and it is also the mapping and localization intelligence behind an array of third-party geospatial and mobile autonomous robotics solutions that need to quickly and accurately assess and understand the fundamental questions of where they are and what is around them.

The name is not about the technique we use, it's about the problems we solve

decisions. We kindly ask you to go into this last subject as much as possible.]

Kaarta's highly mobile approach has many advantages over traditional capture approaches including fast speed, quick response, and minimum site access. In addition, Kaarta provides 100% coverage in the most complex environments. We can scan environments impossible for stationary scans including partially flooded mines, shipboard applications, small spaces, and more.

model the world in unprecedented ways by mapping everything from acoustics, radiation, lighting, RF, chemicals, and much more. Robots will increasingly be part of our lives - even if they don't look like the robots of fiction and movies. Whether navigating a warehouse or a retail store aisle, cleaning floors, or making a last mile home delivery, autonomous robots need a map and need to know where they are on the map. Kaarta provides a new level

METAKEYS

MAPPING, CARTOGRAPHY, 3D REALITY CAPTURE

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