Kambill Systems Private Limited

Crime Scene Recreation from Drone & Terrestrial Methods

Company overview

Privately Owned
Founded: 2013
CEO: Mr. Kamal Sharma
Total employment: 42 People
Annual Turnover: Rs.5**0**+ Crore
Market share: 85%+
Head office: New Delhi, India

Nature of Business:-
Manufacturer
Exporter
Distributor
Service Provider
Importer
R&D and Education

We have all India Presence : Delhi-NCR, Bangalore, Hyderabad and Mumbai, Uttarakhand etc..

Kambill vision and mission

To Be An Established Leader In The Field Of Simulator Technology / GIS and To Provide Our Clients With 'Leading Edge' Products And Solutions as per Customer requirement.

To Achieve The Highest Levels Of Customer Satisfaction Through Timely Delivery And Integration Of Cutting-Edge Technology Solutions And Work With Our Clients On Technology Adaptation And Integration.

Presenting viDoc

The future of

single point

measurement with

3D scanning

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Crime Scene Recreation using Drones & Terrestrial Methods

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Drone Based Recreation of a Site

1. For Larger Areas
2. Can Process Data within Few Hour using Pix4D React.
3. Output as Orthomosaic &

Terrestrial Based Recreation of a Site (Indoor & Outdoor)

1. For Smaller Areas
2. Can Process Data within Few Minutes

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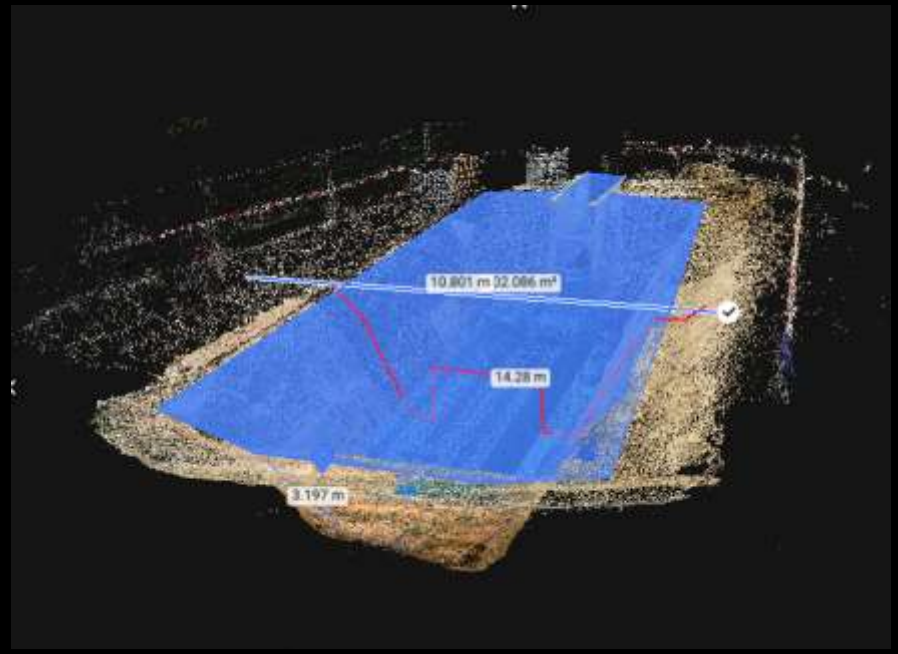
Larger Area with Drone

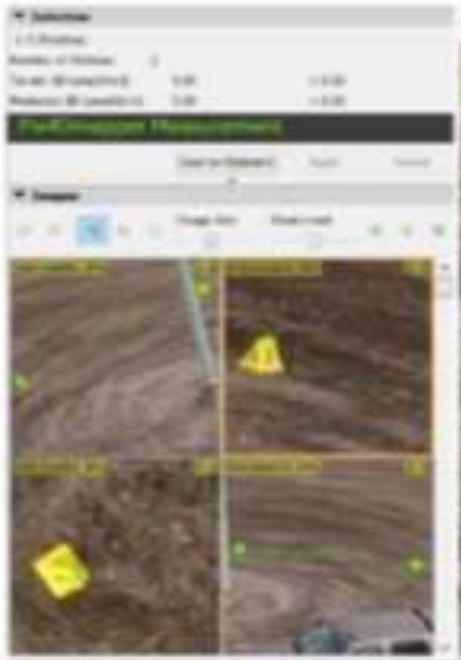
Smaller Areas with viDOC



Comparison from Traditional Methods

Comparison with Taping Method

a) Compare UAV+Pix4Dmapper results with tape measurements



Eight evidence markers, labeled with the numbers 1 to 8, had their positions surveyed by GPS and thus were with known coordinates. Tapes were used to measure the following distances between markers: 1-2, 3-4, 5-6, and 7-8.

The same distances were also measured by the measuring tools in Pix4Dmapper. These two types of measurements were compared with the same distances calculated directly from the known coordinates of markers.

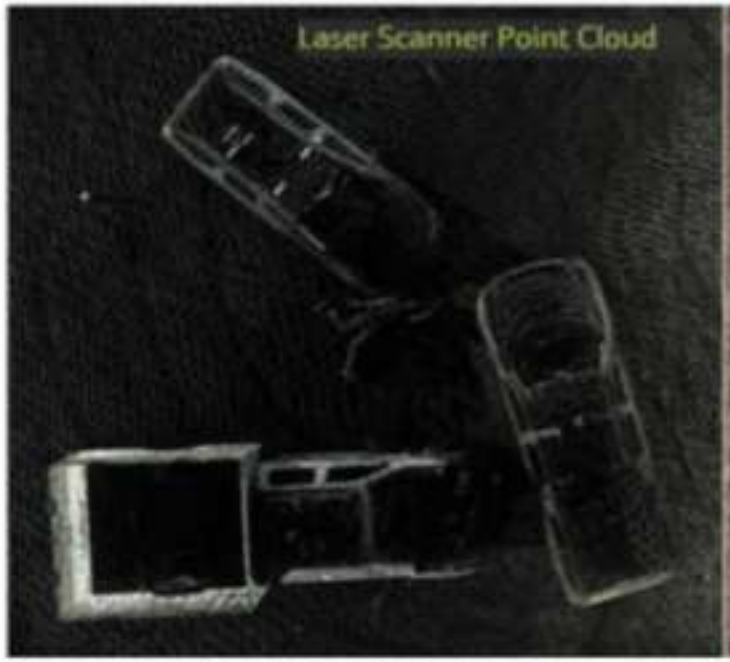
	#1 ~ #2	#3 ~ #4	#5 ~ #6	#7 ~ #8
Marker Corners (GCPs)	5.00 meters	9.99 meters	7.50 meters	12.32 meters
Tape Measurement	5.00 meters	10.00 meters	7.50 meters	12.34 meters
UAV+Pix4Dmapper	5.00 meters	9.98 meters	7.49 meters	12.31 meters

Comparison with Laser Scanner

c) Compare UAV+Pix4Dmapper results with laser scanner measurements

Laser scanner measurements are well-known to provide accurate point clouds and to have high penetration through objects. In this example, we could actually see some points inside the vehicles. However, it took more preparation time than the UAVs and the scanner's set-up position and scanning angles were not flexible. From the graphs below, we can observe that the scanner obtained much fewer points. Another difficult problem to solve was the obstruction of views, resulting in lack of details in the focused area around the body.

Rotary wing UAVs like the Draganfly and Aeryon Labs systems are capable of getting very close to the aim with good control. The number of points generated by Pix4Dmapper for the point cloud depends on the image resolution, image quality and the program settings. For a dataset of less than one centimeter GSD, Pix4Dmapper provides both high accuracy and fine details of the scene.



	Truck Height	Truck Length	Truck Width
ROMP Truck	1.70 meters	2.87 meters	2.43 meters
Laser Scanner	1.67 meters	2.87 meters	2.42 meters

	Truck Height	Truck Length	Truck Width
ROMP Truck	1.70 meters	2.87 meters	2.43 meters
UAV+Pix4Dmapper	1.70 meters	2.87 meters	2.43 meters

viDOC in Crime Scene Recreation

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Digitising the Crime Scene for Better Assessment and Justice

1. Scan the crime scene using the viDOC with few images.
2. Create Point Cloud within few minutes.
3. Create 3D Model with just few clicks and within a hour.
4. Do calculations like Measurement, Area & Volume

You can see

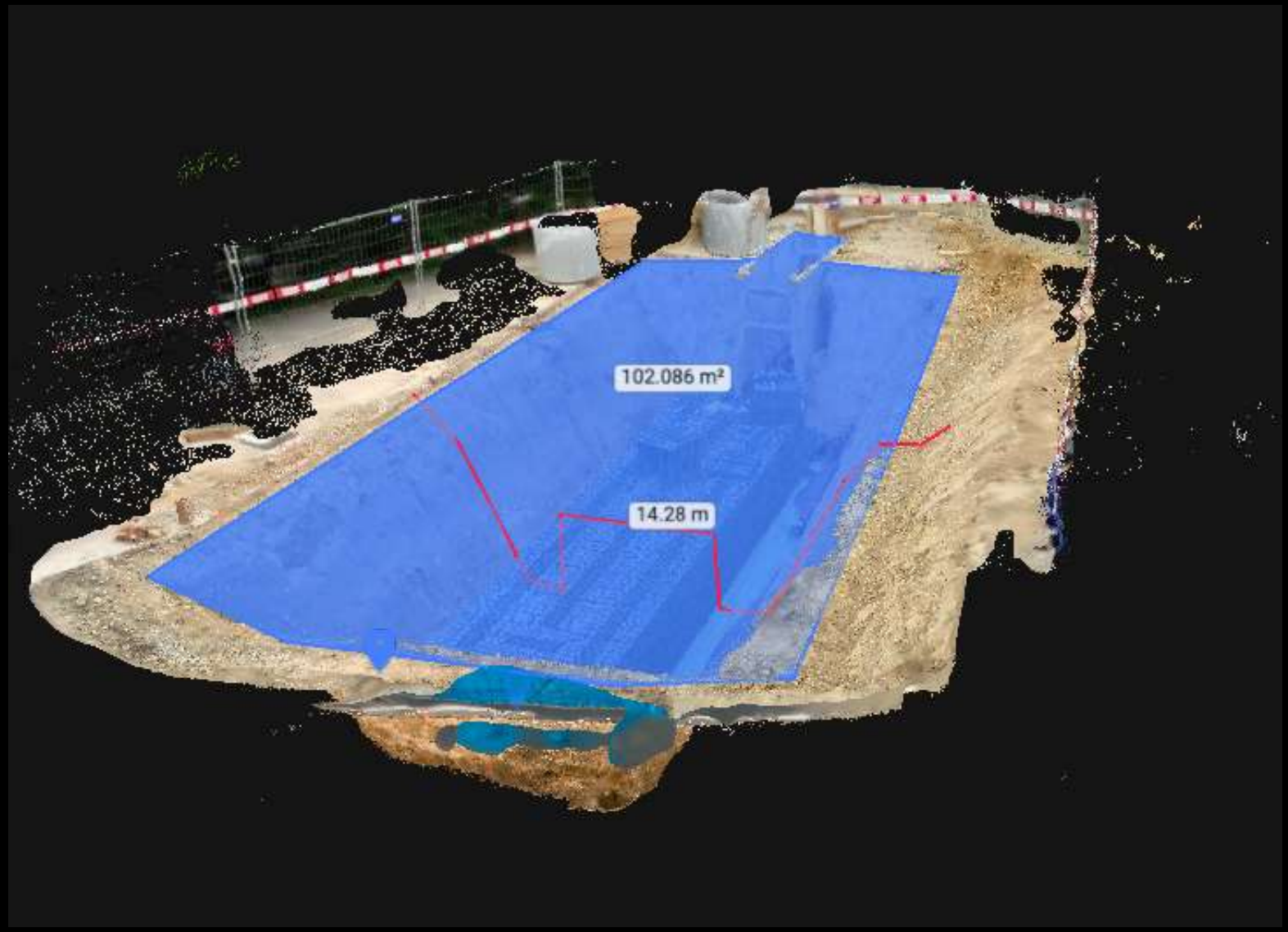
the

Length and

Volume

Marked in the

Image



The Royal Canadian Mounted Police Utilising Drone and Hand-held

I. Introduction

The Royal Canadian Mounted Police started using Unmanned Aerial Vehicles to help them with their work on collision and crime scene investigations. It allows the investigations to be conducted under all weather conditions and provides broader views than the traditional procedures.

This past September, an experimental project was organized by the Royal Canadian Mounted Police (RCMP) and Pix4D, using UAV models from Draganfly and Aeryon Labs to acquire images of a staged car accident scene from low altitude. The images were processed by Pix4Dmapper to reconstruct the three-dimensional scene. In this article, we compare the time spent and accuracy between UAV mapping and traditional procedures, including laser scanner.

The project aims to propose a solution protocol for accident scene investigations. Additionally, by including the accuracy and reliability of the output results, it ensures not only that the whole process is efficient and accurate but also that the reconstruction results can be eventually used as admitted evidence in court.

II. Presentation of the Project

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Thank You...

Team Members:
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