



ACCUWARE

Dragonfly
8 Case Studies
From Some of Our
Customers

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sales@accuware.com

DRAGONFLY

Accuware Dragonfly was developed in 2016 by Accuware's team using proprietary and patented computer vision algorithms for visual SLAM.

Accuware Dragonfly is designed to provide the precise location of moving devices, such as robots, drones, UAV, UGV, AGV, forklifts, industrial cleaning machines and multiple types of vehicles and automated devices.

The list below is a partial list of the most relevant customers.

Last update: August 2020

Customer name:
Ericsson

Location:
Multiple, Worldwide

Time with Dragonfly:
2 years

Claimed Accuracy:
10 cm

Projects:

Ericsson contacted Accuware to integrate indoor positioning on board of multiple different robots and vehicles.

The first project, which is not under NDA, was about performing location tracking of a lawn mower, using 5G connection, provided by Ericsson, to stream the video from the mower to a central server performing the location computation.

After several months of cooperative development, Accuware and Ericsson presented the actual functional lawn mower at a trade show.

The video is available at this link:

<https://www.youtube.com/watch?v=DjQq9DiO6Dw>

After this project Ericsson has decided to integrate Dragonfly on board of several other devices and robots that are currently in use among Ericsson's corporate customers.

Customer name:
iRadar

Location:
Malaysia

Time with Dragonfly:
1.5 years

Claimed Accuracy:
5~10 cm

Project:

iRadar has integrated Dragonfly on board of robots used for inspection.

After successfully testing Dragonfly, iRadar has decided to install it on multiple robots that they use for different customers.

iRadar offers multiple industries with sensing and analytics solution where UAV (unmanned Aerial Vehicle) is deployed to achieve an instant impact and cost effective value for industries to make a real difference.

Their customers come from different industries: agriculture, mining, construction, oil and gas, and for each customer they deliver the best technology and make use of Dragonfly each time precise indoor location is required.

Customer name:
Modani

Location:
USA, Worldwide

Time with Dragonfly:
9 months

Claimed Accuracy:
2~4 inches

Project:

Modani is a worldwide famous manufacturer of luxury furniture, which has been acquired by Maison du Monde in 2018.

For their warehouses based in the United States, Modani has selected Accuware as their partner for precise forklift tracking.

Accuware's team has helped Modani's operation manager to install Dragonfly on board the forklifts in the Miami's warehouse, approximately 15,000 sqm large, and during the on-site tests the precision of the technology could be as high as 2 inches throughout the whole venue.

Modani has then proceeded to deploy Dragonfly throughout all the warehouses in the United States. Operation and warehouse managers can monitor the real time location of the forklifts, control the operations and the actual usage time of each unit. This permits the improvements of daily routines along with a lower cost for maintenance and leasing.

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Customer: Cleaning
Machine Manufacturer

Location:
USA, Worldwide

Time with Dragonfly:
9 months

Claimed Accuracy:
4~7 inches

Project:

The customer is one of the largest manufacturer of industrial cleaning machines. The customer wanted to find a technology able to provide precise indoor location of the machines in order to optimize the operations and cleaning routines.

On the other side, the customer also wants to leverage Dragonfly to perform autonomous navigation and create the first unmanned industrial cleaning machines. For this reasons, after testing several technologies to find the most accurate and robust option, they have decided to choose Dragonfly and integrate it on-board the machines.

The camera, a standard monocular camera, is installed on top, pointing towards the ceiling. The computing unit is also installed on board, so that the whole process can happen locally on the machine. The location data is then sent to an external server for further analysis and historical tracking (heat maps, spaghetti diagrams, reports). The customer is rolling out the plan to install Dragonfly on more than 1,500 new machines/year.

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Customer:
German Telco Operator

Location:
Germany

Time with Dragonfly:
9 months

Claimed Accuracy:
5~20 cm

Project:

the customer is one of the largest Telco in the world. For the German market they are installing Dragonfly on board of multiple vehicles, mainly forklifts, for their corporate customers using a private local 4G network in their facilities.

By doing this, they keep just the camera on board the vehicle, while the computing power resides on a powerful local server (Intel NUC) that gathers and processes the videos coming from all the different units, leveraging the local 4G network provided by our customer.

There are many practical applications that ranges from operation management to improved location design and architecture. Our client is providing consulting services along with the technology to assure that every customer gets the best out of Dragonfly.

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Customer: Forklift
Manufacturer

Location:
Italy, Germany, USA

Time with Dragonfly:
11 months

Claimed Accuracy:
<20 cm

Project:

The customer is a worldwide famous company that operates in several industries.

One of the branches is in charge of producing forklifts and providing warehouse management systems and services. In this context the client is interested in installing Dragonfly on board of the new forklifts being produced.

Besides this, the customer wants to be able to install Dragonfly-as-a-service on the existing forklifts that are operating inside their clients facilities. The typical architecture include on board camera and computing unit, since it is not always possible to use the on-site WiFi connection that would be needed to use a remote computing architecture.

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Customer:
Automotive/Aerospace

Location:
UK, India, Worldwide

Time with Dragonfly:
1 year

Claimed Accuracy:
<7 cm

Project:

The customer is a worldwide famous manufacturer that operates in the automotive and aerospace industries.

The customer is using Dragonfly to track the location of flying drones inside their productive sites for security and monitoring purposes. The R&D team of the customer is currently working to integrate Dragonfly on board other industrial drones to allow complete autonomous navigation inside large warehouses, for inspection.

The client is developing a user interface to plan the routes that the drone has to follow and is taking Dragonfly's data as the location source for the navigation and piloting.

The expected ROI is higher than 100%, as it will significantly reduce the amount of hours of work needed and the personnel involved in the operations.

Customer: Personal
Robots Manufacturer

Location:
Japan

Time with Dragonfly:
9 months

Claimed Accuracy:
<10 cm

Project

The customer is a Japanese manufacturer of robots/rovers that are used in multiple industries. Their scope is to deliver robots that solve actual problems, such as attending visitors on a trade show's floor, providing information to travelers inside an airport, help patients and visitors inside healthcare facilities.

Robots move autonomously on wheels, and there was the need to precisely track their location to constantly monitor the movements and optimize the use of the robots.

In this context, after using LiDars, the customer has decided to switch to Dragonfly since the implementation cost has been proven to be lower, with an increased accuracy and stability of the system.

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