

# Enabling Precision Agriculture and Automation with Emdoor Rugged Devices



## Challenge

"Ordinary terminal equipment often goes down during agricultural machinery operations, and it is difficult to maintain stable operation under the scorching sun, high temperature, and long-term vibration frequency. We need a high-quality, reliable, and sturdy mobile computer that will not be affected by external environmental factors."

said the head of Farmtek RTK.

Before reaching cooperation with Emdoor Information, Farmtek RTK has been using the 13.3-inch consumer tablets on the market. The customer-grade tablets have the advanced performance of good interaction with the unmanned driving system, but cannot face the challenging field environment. The excessive maintenance frequency and cost caused by its vulnerability forced Farmtek RTK to find new devices.

## Solution

Emdoor's EM-I22H/I22J rugged two-in-one tablet computers provide Farmtek RTK with the functionality and durability required for all precision agriculture applications; they enable high-precision agricultural machinery operation and efficient routing planning and scheduling through stable interaction with the agricultural machinery navigation and automatic driving system, and can accurately track and collect a large amount of production data on the site and provide timely feedback on operating efficiency. On the other hand, their robust body built from the inside out also allows farming activities to be carried out regardless of weather conditions.

## Benefits

Compared with consumer-grade devices, the specially designed Emdoor EM-I22H/I22J rugged two-in-one tablet computers are more suitable for use in outdoor agriculture because they have a reliable body that can maintain continuous output, even in the face of significant temperature changes and severe vibrations. The lower failure rate reduces maintenance costs while ensuring the efficiency of agricultural machinery. In addition, they are also equipped with a high-brightness screen that can be read perfectly under any conditions and powerful performance that matches the automatic driving system to assist Farmtek RTK in smoothly performing agricultural automation precision operations.



EM-I22H/EM-I22J

Rugged Two-in-One Tablet PC

# Challenge

In the process of social transformation from agriculturalization to industrialization, more and more people began to seek occupations with higher wages and better working conditions, which also led to fewer and fewer people engaged in agricultural production. As far as agricultural production activities are concerned, autonomous driving, spraying, farming, and picking may be the key to solving labor shortages and maintaining crop yields, because the machine can run for a long time without rest and with less room for error.

Farmtek RTK, as a company focusing on agricultural machinery unmanned driving technology, has launched an agricultural machinery automatic driving solution to make farm operations more efficient in response to the needs of farm operators. This solution requires system software and computer integration. Initially in their selection, Farmtek RTK purchased a modern consumer device as an onboard computer installed on agricultural machinery. With the daily high-intensity use and the harsh farming environment, the disadvantages of ordinary tablet computers are gradually showing: unpredictable downtime, long response time, and high frequency of maintenance, which prevent agricultural activities from being carried out with greater efficiency. To solve these troubles, they need a replacement computer that could withstand harsh conditions and last longer. Emdoor, which has many years of manufacturing experience in the rugged mobile data terminal industry, has become the choice of Farmtek RTK.

# Solution

After an in-depth discussion, Emdoor recommended EM-I22H and EM-22J rugged two-in-one tablet computers as the hardware basis for building a complete agricultural intelligent solution. They are fully rugged two-in-one tablet computers ideal for mounting on farming machines with vibrations or even in the open air. And also feature a large 12.2" capacitive multi-touch screen.

Using the processing power of the EM-I22H/22J two-in-one tablet computers combined with the automatic driving system, agricultural work such as plowing/harvesting/sowing/sprinkling is no longer dependent on manual labor, but is

replaced by efficient mechanized operations. Now it is only necessary to install the navigation module (RTK/GNSS), tilt sensor, electric steering wheel, and EM-I22H/22J two-in-one tablet computers on the farming machine, and input the planned farmland map and agricultural machine driving route into the system, and then activate the customer application through the terminals, the automatic agricultural operation mode can be started. During operation, the communication function of the EM-I22H/22J two-in-one tablet computers can quickly and accurately determine the position and interact with custom application software and peripheral devices to ensure that the vehicle follows the predetermined route with centimeter-level positioning errors. At the same time, the driver can also monitor and manually adjust the working status of the machine through the display of the EM-I22H/22J to accelerate the smooth completion of each assigned farming task. Relevant task execution results, operation quality, speed, and other data can be viewed and analyzed via the two-in-one tablet computers after the whole set of work is finished.



# Benefits

## Scratch-resistant and rugged touchscreen

As a control element in agricultural machinery, the screen of the mobile terminal is destined not to be carefully used, because unavoidable shock, vibrations, dirt, and dust are very common on the farm. The scratch-resistant and solid surface of the Emdoor Information EM-I22H/22J touch screen is especially suitable for use in this harsh environment. It can withstand the crises caused by repeated drops, dust, and water exposure.

## Sunlight readable display

Outdoor use not only requires a device that is rugged but also has a display that can be

read in sunlight. The demand for high brightness is not urgent for ordinary business computers, and the brightness that just meets daily use is somewhat reluctant for field use. Emdoor Information's EM-I22H/22J rugged two-in-one tablet computers are equipped with 650nit high-brightness screens that can ensure good visibility. The high-quality optical laminate greatly improves visibility and can form a sharp contrast and readability even under direct sunlight.

## Stable connectivity with navigation and autopilot systems

Ordinary consumer devices may freeze or fail to run industry-specific software applications due to compatibility issues. Slowed loading speeds mean extended farming time. The Emdoor EM-I22H/22J rugged two-in-one tablet computers with excellent software compatibility can be perfectly integrated with the Farmtek RTK automatic driving system, providing precise functions for application control without sacrificing speed.



# Background

Farmtek RTK is a French integrator focusing on unmanned agricultural machinery technology, and its market covers major European agricultural countries and regions. Since its inception, Farmtek RTK has provided several agricultural businesses with innovative "smart farming" equipment that improves productivity and increases crop yields. Their high-tech agricultural intelligence solutions provide unrivaled reliability and market-leading accuracy, all thanks to the perfect integration of their software systems with Emdoor's rugged mobile computers.