
10 Critical Features Every Parking and Event Management Device Must Have

Having the right tool for the job is important in every industry, but never has it been more important in the parking and event markets. Having the right handheld device, with the right features, can mean the difference between having an efficient data collection tool or a device wrought with deficiencies such as; the inability to operate the device in inclement weather, drop a device on concrete, the inability to connect to kiosks and Pay to Park solutions, no real time data to have accurate scofflaw and real time boot and tow and electronic chalking data. Your enforcement team can only be as efficient as the tools you provide them. There are 9 main features of a handheld parking and event payment collection device that will help reduce overall cost of ownership, eradicate data loss, and maintain streamlined business processes all while keeping your workforce happy and engaged.



1. Mobile Operating System

There are three possible operating systems that mobile devices use; **Android**, **Apple iOS** and **Windows**. Android and Windows being the dominant choice for citation devices and as the availability of Apple applications increases so will the hardware. Obvious statement, but the software OS must match the device OS thus if you are working with a solution provider that has written their software in Android the hardware cannot be an Apple device.

A consideration when choosing which operating system to use is how often the platforms are upgraded, if legacy equipment running on older versions will be supported and the ease to upgrade.

You may also consider the ability to add peripherals. Android and Windows Mobile devices have adopted the Micro USB standard, whereas Apple insists on its proprietary Lightning cable. All real-time information requirements for Pay to Park, kiosks and scofflaw require a device with a real time data plan.

2. Integrated Thermal Printer

One of the most important considerations printing tickets and receipts is the convenience of an integrated printer into an all in one device. Why carry two devices when you can carry one?

Advantages of a Two Piece Solution

- Tickets can be issued in a timely manner (printer has one function: PRINT)
- Printer and handheld can be repaired separately



Disadvantages of a Two Piece Solution

- Requires daily Bluetooth pairing with handheld device.
- Two pieces of hardware to carry, which is cumbersome
- Two pieces of hardware to support
- The mobile unit and the printer work on separate power systems, so battery life will not be synchronized

A Mobile Device with an Integrated Printer

Advantages of an Integrated Printer

- The mobile device's size is only slightly enlarged to incorporate the integrated printer.
- In a well-designed product, both the printer and the mobile device use a common power system. Therefore, battery life is synchronized between the two functions
- Bluetooth pairing is not required. You can power-on and go without worry



Disadvantages of an Integrated Printer

- Entire product would need to be returned if a repair is required
- If a device is stolen both devices are gone

3. Hot Swappable Batteries

While most mobile batteries boast a long battery life, they can't meet the demands of a purely mobile workforce. The ability to easily swap batteries in and out of devices while in the field is an integral piece in printing efficiency. Users are not bound by low power, and can repower easily with an interchangeable, fully charged battery, saving time once caused by battery drained devices. A hot swappable battery is a battery that allows easy and swift replacement without having to power down the device. Hot swappable batteries are also cost efficient, reducing the number of devices needed per user. Each user will only require one device, and a set of rechargeable batteries



4. Bar Code Scanning

Bar Code scanning is often a requirement for mobile devices dedicated to the parking and permit sectors. Bar Codes are often used to record prepaid parking documents.

There are two methods of reading bar codes from mobile devices; imagers use a camera-based imaging technology that uses rows of CCD or CMOS sensors arranged in a two-dimensional array to generate an image of the symbol. The image is then decoded. It works similar to digital camera.

The advantage of an imager is its' lower cost due to using the camera already inherent to the mobile device and software to decipher the image into usable bar code content. The disadvantage is it takes more time to align the barcode for reading.

The other option is a dedicated laser scanner. With laser scanning technology: The optics inside a laser scanner emit a laser beam and use a lens to focus the beam with an oscillating mirror that moves the laser beam line across the barcode very rapidly. The laser light beam is then reflected off the barcode and back to the scanner, allowing the scanner to decode the reflected signal.

A dedicated laser scanner has many advantages when used for parking and citations;

- Lasers are faster and typically provide decode rates of over 1,000 real-time decodes per second.
- Lasers provide a sharp, clear laser line which only focuses on the barcode.
- Lasers can read over long distances and provide greater depth of field (the inside and outside distance from the scanner).



5. Rugged/Durable

The outdoor work environment of most handheld devices lends itself to a high risk of damage and wear. Rain, grime, and accidental dropping are just a few ways that a handheld device used outdoors may suffer and be rendered useless. Selecting devices with proven ruggedness decreases revenue loss associated with these risks by reducing equipment replacement and repair costs. A measure of device protection against intrusion from body parts (hands and fingers), dust, accidental contact, and water is called the “IP Rating.” A handheld e-ticketing device should be selected with the highest ratings in mind. IP Ratings are important when selecting a device for outdoor use, the chart below details these ratings:

SOLID OBJECT		MOISTURE	
1	Protected against a solid object greater than 50mm such as a hand.	1	Protected against vertical falling drops of water. Limited ingress permitted.
2	Protected against a solid object greater than 12.5mm such as a finger.	2	Protected against vertical falling drops of water with enclosure tilted up to 15 degrees from the vertical. Limited ingress permitted.
3	Protected against a solid object greater than 2.5mm such as a screwdriver.	3	Protected against sprays of water up to 60 degrees from the vertical. Limited ingress permitted.
4	Protected against a solid object greater than 1mm such as a wire.	4	Protected against water splashes from all directions. Limited ingress permitted.
5	Dust protected. Limited ingress of dust permitted. Will not interfere with operation of the equipment.	5	Protected against jets of water. Limited ingress permitted.
6	Dust tight. No ingress of dust.	6	Protected against powerful jets of water. Limited ingress permitted.
IP 65 <small>Ingress protection</small>		7	Watertight against the effects of immersion in water between 15cm and 1m for 30 minutes.
		8	Water tight against the effects of immersion in water under pressure for long periods.

The other important specification to keep in mind is MIL Spec 810G which tests for vibration and shock. Let’s face it, mobile devices get dropped. Consumer devices are not design for the worst environmental conditions. Seek out a manufacturer that specializes in ultra-rugged devices for your demanding environments. Depending on your environment extreme heat/cold will effect display performance. This is a critical specification. Ask where the device is currently being used and speak with the department regarding their level of satisfaction. Mobile devices should allow for a five year extended warranty. Sending the statement “you should expect five years of use from this device.”

6. Card Readers

Both magnetic card stripe and smart card readers come included in some handheld devices. Having a wide range of options for collecting payment or issuing permits and access is essential in the parking and events industries. Some of these options are taking direct credit/debit payment for parking and event access, and verifying private access via smart cards.



7. Wireless Data Connection

When mobility is paramount, the ability of devices to connect to a system’s backend is not negotiable. Devices have the option of connecting to a computer via USB cable, the use of Wi-Fi, where available, to upload information to a database or through cell signals such as 4G LTE. Base your connectivity decisions on the ubiquity of coverage and the need for “real-time” data transfer. Most solutions we see today are real time but connectivity is paramount and every environment different.

8. Camera

Modern ticketing solutions offer the ability to take photographs to support the violation with evidence, minimize disputes and expedite payment. Any device that is designed for parking enforcement should have a camera above 10MP because sometimes the answer lies in the detail. Since most devices include an integrated camera the days of carrying a separate camera are over.



9. Ergonomics

The device you select for your enforcement officers/ employees must be able to be carried and operated without stress or strain. The device should fit in one hand and should have a place to rest/store the device when not in use such as a carrying case or strap designed to ease the use of the device. Anything over two pounds is too heavy to carry and operate. The idea of using two hands to hold a tablet or carrying multiple devices is not realistic for a full 8 hour shift. Some departments we have worked with provide two or three devices for trial to their enforcement team. It seems to aid in the acceptance/adoption process.



10. Sunlight Readable Display

There are several different display technologies that are commonly used in mobile devices today. Their readability in both direct and indirect sunlight varies from "not-at-all" to "very good". Device manufacturers (i.e. Samsung) have to consider the cost of every component that is used vs. what is required by the users of that device. Displays that offer better sunlight readability in nearly every case carry a higher cost than those that do not. Additionally, display technology is constantly improving, so a display type that did not work well 2 years ago might offer good performance today. There is no substitute for direct evaluation. If enforcement is conducted outdoors and sunlight will be a factor, test any device you are considering in all lighting conditions including direct sunlight to insure that the device's display performance is satisfactory.





Take Action!

Armed with the information regarding technological advances in handheld parking and event payment collection devices, ask yourself...

“Can we afford not to have these features in our devices?”



Two Technologies, Inc.:

Hand Held Computers • Your Way • Since 1987