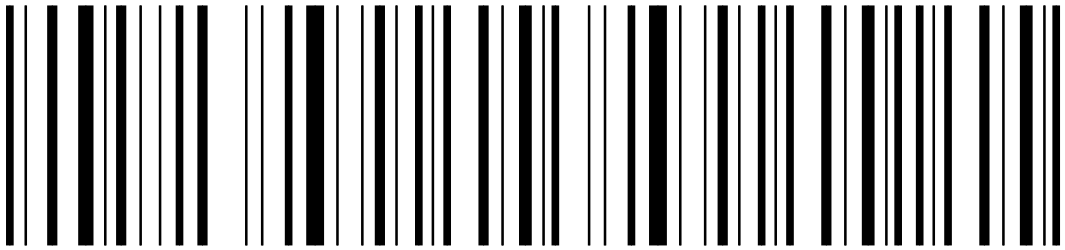
Mobile Printing Provides the Automated Alternative to Ticket Writing



APPLICATION WHITE PAPER

Zebra Technologies

Executive Summary

Parking tickets and traffic citations aren't just an inconvenience to the recipient. Ticketing can be very time consuming for officers and support staff alike. Most police departments and traffic authorities consider only two options for ticket management: use clerical staff to transcribe, enter and file ticket records, or pay to outsource the operation to an outside service provider. Each option diverts valuable resources from other public safety and administrative responsibilities.

Now there is another option for ticketing processing that does not require an ongoing commitment of staff time or payments to third parties. Automated ticketing systems, which operate on easy-to-use mobile computers and printers, are delivering significant time and cost savings to officers and administrators alike. The technology has matured so it is affordable and practical for use in nearly any ticket-issuing authority, including police, parking authorities, campus security, special event staff and private security guards.

This white paper will explain how automated ticketing systems work, describe the required mobile computing and printing technology, and provide examples of how they save money while improving accuracy and convenience.

Ticket & Citation Issuance

In automated ticketing systems, pen and pad are replaced by mobile computers and printers. Laptop or tablet computers may be used, although handheld models that resemble ruggedized PDAs are the most common option. The software may appear exactly the same as the paper-based ticket form, which makes it extremely easy for users to learn the new system. Aside from the input device, the ticketing procedure can be virtually the same as with paper tickets. Departments can also opt to take advantage of the available computing and communications power to create advanced systems that perform records checks and offer real-time, two-way communication. However mobile technology is used, it will significantly reduce the processing and management burden on administrators and support staff.

Application software creates electronic versions of ticket and citation forms that officers view on the mobile computer screen. Users can quickly access all the forms they need by hitting tabs or menu bars to call up new screens. Depending on the equipment and software selected, officers may complete tickets and citations by tapping check boxes with a pen-like stylus, hitting tabs and function keys, selecting from pull-down menus or typing on a keyboard. The more logic and options that are built into the software, the less data entry is required, which provides the most time savings and accuracy benefits.

Many handheld and tablet computers accept freehand input so users can add notes, capture signatures or make drawings, which is especially useful for documenting moving violations. The additional notations are stored electronically and automatically attached to the citation record. The date and time of all transactions is automatically recorded. Software can automatically check the form and prompt the officer to provide missing information or verify unusual entries (for example if "700 mph" was recorded when the officer meant to write "70 mph").

Once the form has been completed to satisfaction the issuer hits one more key and a ticket is automatically printed. The resulting document is clear and completely legible, and so is the permanent record that will be kept on file. Improved legibility reduces much of the confusion and discrepancies that can lead contested tickets to be waived.

Accuracy and legibility are important benefits of automated ticketing systems. One municipality estimated that five percent of parking tickets issued were unenforceable because of errors or illegibility. The city issued between 100 and 200 tickets a day, ranging in value from $35 to more than $100. The city switched to an automated ticketing system and errors have dropped to virtually zero. At the minimum activity level of 100 per day and ticket value of $35 per ticket, the automated system produces direct daily savings of $165 by eliminating unrecoverable revenue from low quality tickets. Multiply your own ticket volume by error rate and average ticket value to see the revenue boost an automated ticketing system could provide for you.

The uses of mobile computers and printers described above are most like manual ticketing operations and are the simplest to deploy and require only minimal computer skills to operate in the field. More advanced applications with additional features are also available. Electronic signature capture, digital camera capabilities, automatic data entry using the magnetic stripe, bar code or computer chip on the driver's license and ticket payment acceptance with a card reader are all possible. These features will be described in the Technology section.

Ticket & Citation Processing

Successful systems require few changes to how officers work in the field. It is on the back end of the process where operations are transformed and the biggest benefits are gained. At the end of each shift, officers place their handheld computers into docking cradles that recharge the batteries and upload the complete activity record for the day. Instantly, all the information for each ticket written is transferred to the computerized record system. There is no need for clerks or officers to transcribe and type records into the system, which provides a tremendous time and labor savings and provides no new chance of errors to enter the record. With automated ticketing systems, information is recorded once, in the field, never requires additional manual processing, and is quickly available to everyone with access to the record system.

The city of Fall River, Mass, is saving more than $100,000 annually in processing costs alone since implementing an automated ticketing system. The city previously outsourced all its ticket processing to an outside company, which cost about $5.50 per ticket plus added time to the processing and collection cycle. The system provided a fast payback because of the elimination of processing fees and increased revenues resulting from fewer unenforceable tickets.

Similar strong financial benefits are available to municipalities, campuses and other facilities that do their own ticket processing. If 100 tickets per day are issued, and clerks take an average of four minutes to read, review and key enter each ticket into the records system, 400 minutes, or 6.67 hours, of clerical time are required each day just for transcription. That is a support requirement of nearly one full-time worker for every 100 tickets issued. Multiply the labor hours by the hourly wage and benefits paid to get a better sense of the cost burden that comes with manual ticketing. Manual ticketing also leads to errors that lead to unenforceable tickets that drain revenues as illustrated in the earlier example. Automating the process completes the work more accurately and efficiently and enables staff resources to be reassigned to more valuable and productive tasks.

Many municipalities count on tickets as an important source of revenue, but do not realize that ticketing also contributes significantly to operating expenses. By improving collections and eliminating manual processing requirements, automated ticketing systems provide a fast return-on-investment and continue delivering financial benefits long after the initial investment has been repaid.

Mobile computers and printers have the power to make an immediate impact on ticketing and citation operations, and new features and peripheral devices are continually being developed to satisfy additional applications. Mobile computers, for example, may include built-in imagers, which can be used to take digital pictures of accident scenes, document damage and provide proof of parking infractions. Pen-style computers can capture digital signatures and notations that can be automatically appended to files and included in ticket printouts. Inexpensive memory makes it practical to download databases of traffic scofflaws or outstanding warrants to the handheld device. Computers and printers can communicate through a variety of wireless interfaces, which provides additional convenience and application flexibility. Mobile computing is one of the most innovative and fastest growing industries, which is making the technology practical and affordable for more authorities than ever before.

Mobile Printers

Mobile printers unlock the value of automated ticketing applications and offer processing power, wireless communications and other features usually associated with mobile computers. Mobile printers may even have an integrated card reader, which would enable parking enforcement authorities to accept credit cards and process ticket payments on the spot.

Mobile printers can be mounted in a variety of vehicles, but wearable models carried on belt clips or shoulder straps are usually favored for ticketing applications. Regardless of the form factor, mobile printers are able to print text, logos, graphics, and bar codes on many types of media that vary by width, thickness and durability. The key printer performance criteria for ticketing and citation applications are durability, reliability, ease of use and battery life.

Wireless Communications

Printers receive data and instructions from mobile computers by either a cable or wireless connection. Mobile computers may also support wide-area wireless communications, which provide real-time data communications to records systems and other applications at headquarters or other remote facilities. These wireless networks can be used to run license checks, search for outstanding warrants and access a variety of other information. They may also be to automatically record precisely the place and time where tickets were issued, or to provide real-time monitoring of personnel locations.

Mobile printers can have direct connections to wireless local area networks (LANs), although there are limited opportunities to use this capability in outdoor applications, where network coverage is usually not available. However, the infrastructure of wireless public “hot spots” for Internet access is expanding rapidly, which may create opportunities to use wireless LAN-enabled printers and computers for ticketing, especially around airports, campuses and entertainment districts. Wireless LAN is the only wireless printing application where security is a consideration. Zebra Technologies offers several advanced security protocols that close the common wireless LAN vulnerabilities and enable highly secure, encrypted communications.

Bluetooth is emerging as the leading wireless technology to replace cables between mobile printer and computer. Bluetooth is a standardized, short-range wireless technology that enables up to eight computers, printers, and other devices to interface with each other from up to 30 feet (9 m) away in peer-to-peer networks, without going through a centralized hub or server. Wireless printers can even simultaneously support Bluetooth and separate wireless LAN transmissions without interference. Bluetooth provides extremely fast and reliable printing because of its data transfer speed and resistance to interference. Other radio technologies and infrared (IR) light are other alternatives for wireless cable replacement in printing applications.

Zebra Wireless Options

Zebra Technologies supports all the wireless LAN and cable replacement technologies described above. For maximum flexibility, Zebra offers QuickLink™ removable radio modules for its QL™ series of mobile printers. QuickLink radios come in Bluetooth and 802.11b (Symbol® Compact Flash and Cisco® PCMCIA form factors). Another popular option for wireless connectivity is the Zebra Portable Radio. This clip-on unit that mates with a variety of terminals made by Symbol Technologies and adds Bluetooth point-to-point radio connectivity is less than eight oz. (0.23 kg). For more information about wireless technology, see the Zebra white paper *The Benefits of Wireless Printing*.

Wireless mobile printing systems are easy to set up and use. The only difference users notice is the lack of awkward cables connecting the printer to the portable computer. While choosing to go wireless benefits nearly every mobile printing application, there are other important factors to consider for optimum efficiency and performance of a mobile printing application. To learn more about mobile printing products and features, see the Zebra white paper *Understanding Mobile Printing Technology and Capabilities*.

Conclusion

Mobile printing and computing systems are able to significantly reduce the administrative burden from ticketing operations without requiring users to undergo extensive training or to have extensive computer skills. Automated ticketing eliminates most of the labor required for ticket processing and do not require more support or resources when transaction volume rises. The systems are easy to use and adaptable for use by inspectors, private facility operators, security firms, parks officials, campus police and other authorities. The computing, printing and communications capabilities available today are affordable for basic applications and capable of much more.

Zebra Technologies offers the widest range of mobile printers in the industry and supports all the leading communications options. Our products are trusted by many public safety and law enforcement agencies around the world. Contact Zebra today to learn more about how our products and expertise can help improve your ticketing and citation operations.

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