
White Paper

Why the NIMble is a better alternative than the iPad for Kiosk Applications

OVERVIEW

The popularity of the Apple iPad™ with consumers has opened the door for the iPad to be used in Kiosks in both retail and enterprise settings. The iPad works in these settings because it is small, easy to deploy and has the instantly recognizable Projective Capacitive touch screen. However, using a consumer tablet in Kiosk scenarios does have limitations. Touch Revolution's NIMble™ Embedded Touch Computer removes these limitations and excels as a full kiosk solution. This white paper compares the Apple iPad and TR's NIMble in the context of a Kiosk, concentrating in the areas of Software Flexibility, Device Management, Peripheral Integration, Industrial/Mechanical Design, Customization and Cost.



WHAT IS NIMBLE

Touch Revolution's NIMble™ Embedded Touch Computer is an integrated Projective Capacitive touch display (Fusion) and a fully functional single board computer. The system comes complete with the open source Android™ operating system that can be modified to add custom hardware and software. The system is provided as components that are combined in a custom enclosure. The NIMble touch computer is made up of commercial grade version of the core internal components of an Android tablet that has been redesigned to allow easy integration with peripheral hardware and has been made robust for more commercial uses and environments.

SOFTWARE FLEXIBILITY

The software landscapes for the NIMble tablet and iPad have some similarities but in general are polar opposites in terms of openness and interoperability. NIMble is based on the free and open source Android Operating System created by Google. The Android OS is fully open source and can be customized for specific purposes or capability. On the opposite side of the spectrum, the iPad OS (termed iOS) is closed source and cannot be modified by anyone except Apple. This means if iOS does not have a required feature needed for a given application, it cannot be added. On a NIMble system, however, new features can be integrated easily and quickly.

DEVICE SW MANAGEMENT

The Android and iPad operating systems are similar in their ease and simplicity of writing applications. Both OS have a detailed and fully functional Software Developer's Kit that allows developers to easily write and test beautiful touch applications. From here the two diverge for several reasons. Deploying applications to a large number of devices is easier with Android as the installation can be done over a wireless network, while iPad requires a direct connection or approval by the apple app store. There are alternate methods for iPad deployment, but all require some fee paid to Apple in the form of a developer prograsship which range in price from \$99 to \$299.

There are no fees associated with Android development. An added bonus is Android's broad market acceptance in consumer electronics such as phones and tablets. This allows customers and designers in other vertical markets, not limited to kiosk design, to draw on a broad knowledge base to develop rich media interfaces that are easily recognizable and nearly intuitive for customers and end users.

PERIPHERAL INTEGRATION

Similar to the openness of its software, the NIMble has an open hardware interface that easily allows peripheral integration. This is in stark contrast to the iPad dock connector which requires an extensive license process and approval from Apple to get hardware technical documentation. The NIMble single board computer has a hardware interface that allows for a variety of protocols and GPIO devices to be attached to the system. These interfaces have standard Molex connectors, and can easily be connected to hardware devices or sub-PCBs. If a peripheral – such as a specific magnetic stripe reader, barcode scanner or printer – needs to be integrated into the Kiosk, it cannot be connected directly to an iPad. Standard Molex connectors on the NIMble were chosen specifically to allow designers to integrate almost any needed peripheral. The openness of the NIMble software platform makes driver integration quick and easy. This is again in stark contrast to the iPad OS which cannot be modified directly by users.

INDUSTRIAL AND MECHANICAL DESIGN

In the mechanical design arena, the NIMble touch computer is the clear winner. While the tablet form factor of the iPad is good for many consumer scenarios, it does not lend itself to easy integration into a Kiosk. The sleek design of the iPad lacks any solid mount points. The fixed button location limits the options for the industrial design of the overall kiosk. Moreover, the inherent advantage of the design of the TR Fusion Touch Display is the ability to flush mount the touch panel in a bezel-less application. Whereas, the iPad requires complicated fixturing to adequately mount it in most applications.

By comparison, the separate components of the NIMble system allow for a greater degree of freedom for Industrial designers. The single board computer of the NIMble has four standard mount points to enable a very easy and secure way to install the PCB in the kiosk enclosure. The Fusion touch display was created with an oversized border that allows it to mount with easy-to-use, double-sided and pressure-sensitive tape. Together, they can be arranged in multiple configurations for different overall form factors driven by kiosk industrial design constraints.

CUSTOMIZATION

From its inception, the NIMble touch computer was created to allow designers and engineers to create a custom experience:

The NIMble touch computer allows for:

- Custom buttons
- Custom boot screens
- Unique and rich media applications that engage end users in an intuitive way
- Multiple screen sizes including 7" and 10.1" with more sizes in development
- Custom optical coatings
- Unique Industrial design
- Ability to handle current and emerging peripherals

COST

The NIMble touch computer is priced competitively with the iPad tablet. Furthermore, NIMble has a lower total cost of ownership (TCO) than iPad. The TCO takes into account the cost of mechanical integration which will be less for NIMble because of its standard mounting holes while the iPad must be secured using an expensive, unique enclosure that holds the iPad instead of the simple NIMble mounting solution. The TCO should also take into account the cost of software development and deployment which will be less with Android due to the open nature of the entire source code. The cost of integrating hardware will be less with NIMble because a larger variety of components can be used which allows system engineers to select cheaper components.

SUMMARY

While the iPad is a beautiful consumer device, the NIMble touch computer outshines it in many categories as a Kiosk platform. The NIMble computer was designed specifically for commercial uses. The overall openness of the platform allows for easier and faster development and gives engineers a much wider variety of peripherals to choose from. The mechanical design of the NIMble components gives mechanical and industrial designers much more freedom to create beautiful and inexpensive designs. NIMble's strengths offer kiosk designers the flexibility and resources to compete in an ever complex and evolving market. The NIMble has strategic advantages over the iPad thanks to its straightforward design, software openness, support for multiple peripherals and lower cost.

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