



# Touch Controls (/touch-controls/3015-2256/)

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Games that are controlled partially or entirely with a touch screen.

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With touch screen platforms like the Nintendo

DS (/nintendo-ds/3045-52/), 3DS (/nintendo-3ds/3045-117/), iPhone (/iphone/3045-96/), iPod Touch (/ipod/3045-72/), Android (/android/3045-123/), PlayStation Vita (/playstation-vita/3045-129/) and Wii U (/wii-u/3045-139/) seeing thousands of games, touch controls are becoming more and more common in portable games. With devices like the Nintendo DS, touch controls can become a part of the game along with the analog controls provided by the platform. While the Nintendo DS uses a stylus (/stylus/3055-3606/) for it's main touch input, other devices like the iPhone or iPad (/ipad/3045-121/) require finger input.

## History

The origins of the touchscreen dates back to the early 1970s. One of the earliest released touchscreens was the for the PLATO VI (/plato/3045-111/), which prior to the invention of the resistive touchscreen in the early 1980s, was using an infrared touch system by 1972.

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The touch technology used employed infrared transmitters and receivers around a flat-panel plasma screen, the first of its kind. The hardware and software were developed by the University of Illinois at Urbana-Champaign and Control Data Corporation (CDC).

The first portable platform to use a touchpad pointing device was Sharp ([/sharp-corporation/3010-6509/](#))'s PC-5000 ([/pc/3045-94/](#)), one of the first laptop computers, in 1983. The use of a touchpad pointing device later become standard for laptop computers in the 1990s, especially following its use in Apple's ([/apple-inc/3010-5815/](#))PowerBook laptops.

### **Sega consoles**

The first attempts at introducing touchscreens to dedicated gaming systems were by Sega ([/sega/3010-62/](#)). As early as 1985, they released the Sega Graphic Board ([http://segaretro.org/Sega\\_Graphic\\_Board](http://segaretro.org/Sega_Graphic_Board)) tablet controller for the Sega SG-1000 ([/sega-sg-1000/3045-141/](#)) console in Japan ([/japan/3035-37/](#)). It came with a stylus pen, and the first touch-controlled game was Terebi Oekaki ([/terebi-oekaki/3030-44069/](#)).

They were later planning to release the first handheld game console with touchscreen controls as the intended successor to the Game Gear ([/game-gear/3045-5/](#)). Intended for release in the early-mid 1990s, the device was ultimately shelved and never released due to the expensive cost of touchscreen technology in the early 1990s.

In 1993, Sega released the Sega Pico ([/sega-pico/3045-118/](#)) edutainment console. Its controls consisted of a stylus pen and touch pad, based on active digitizer technology. It was the first console to use touch controls as the default control scheme, and the earliest known device to use active digitizer technology.

### **Tiger Game.com**

The Tiger ([/tiger-electronics-inc/3010-1715/](#)) Game.Com ([/gamecom/3045-77/](#)), launched in 1997, was the first officially released hand held gaming system to use a touch screen. The game.com used a resistive touch screen with a stylus, and the system software was driven entirely by touch. Commercially, the system was a failure, and the idea of a touch screen gaming system was not revived until several years later.

### **Arcade gaming**

Japanese ([/japan/3035-37/](#)) arcade ([/arcade/3045-84/](#)) games have been using touch controls since the early 2000s, though these games are uncommon outside of Asia ([/asia/3035-1663/](#)). Touch controls are used for card ([/games/?sort=release\\_date&filter\\_type=genre&filter\\_value=13/](#))-based real-time strategy ([/games/?](#)

sort=release\_date&filter\_type=genre&filter\_value=12/) games, largely popularized by Sega (/sega/3010-62/) releases such as World Club Champion Football (/world-club-champion-football/3025-1371/) and Sangokushi Taisen (/sangokushi-taisen/3025-2142/), where card placement on a touch surface corresponds to the actions of units on screen; the surface is able to identify each card separately. Arcade titles like these were the first commercially successful touchscreen games. Sega's Psy-Phi (/psy-phi/3030-32596/) introduced full-screen HD touch controls in 2005. In more recent years, multi-touch (/multitouch/3015-4952/) has been used for music rhythm games, largely popularized the DJ Max Technika (/djmax/3025-597/) series from South Korea (/south-korea/3035-2410/) since 2008.

## **Nintendo DS**

The Nintendo DS (/nintendo-ds/3045-52/) was the first popular hand held system to feature a touch screen, and is one of the first times Nintendo had implemented a major hardware innovation since the analog stick and rumble pak used with the Nintendo 64 (/nintendo-64/3045-43/) controller (and before that, the original light gun (/light-gun/3015-2354/) and D-pad controller provided with the NES (/nes/3045-21/) console). Many games on the DS have options for touch controls, or integrate touch controls with standard physical controls. Some games, however, rely almost completely on the touch screen, such as the WarioWare (/warioware/3025-220/) series of games.

## **iPhone/iPod/iPad**

Unlike the pressure-sensitive touch screen on the DS, the iDevices have a capacitive touch screen. This measures the actual electrical current in human fingers to report data from interaction. This provides for extremely accurate detection of input, even when from a finger. This technology, paired with multitouch (/multitouch/3015-4952/), has allowed for games on these platforms to become closer and closer to titles one would see on a standard portable gaming device.

## **The Trouble with Touch**

The biggest roadblock to touch control based games is the complete lack of tactile response. That is, when you touch a screen, it is a completely different experience than physically pressing an analog button. Because of this, it's easy for your fingers to move from the on-screen button without you knowing it, resulting in poor gameplay and mistakes. Technology companies are currently researching "soft" touch screens that provide a certain level of physical response to touch, but it's not quite the same feel.

At the launch of the App Store, many many more games tried and failed at touch controls. Some weren't smooth enough, while others simply wouldn't detect input properly. Other games had issues with being too frantic, resulting in a player having trouble keeping his fingers in the right areas of the screen. Luckily, modern games for the iPhone, particularly those from major developers, have extremely polished touch controls.

## UI Customization

Some modern games for the iDevices allow the user to fully or partially change the UI ([/custom-ui/3015-2554/](#)) of the game to suit their own preferences. Games like N.O.V.A. ([/nova/3030-29510/](#)) and Zenonia 2 ([/zenonia-2-the-lost-memories/3030-30176/](#)) allow the player to change the placement, size, and even opacity of the on-screen controls. This is especially important for a device like the iPad, which has a large screen, and can become uncomfortable without being able to rearrange the controls appropriately.

This an advantage the on-screen controls have against physical buttons, as regular game controllers require extensive physical modifications to change the button layout. This idea also allows developers to design controls that tailor precisely to their own game experience. If a game only needs one button to play, the reset of the screen real estate can be used to show game content. Meanwhile, a game that requires many buttons can place them in the optimal position to maximize the game experience. This can also be a disadvantage as well, as not having one controller for all games can confuse players, and require them to get used to a new control scheme with every new game they play.

## Touch Control Landmarks

While there are many games out there with great touch controls nowadays, there were a few that really lead the way in creating smooth and accurate controls for touch screen games.

WarioWare ([/warioware/3025-220/](#))

These games showed us how much fun touch interaction can be in games, and relied almost 100% on touch controls.

Hero of Sparta ([/hero-of-sparta/3030-24856/](#))

Gameloft ([/gameloft-sa/3010-743/](#)) led the pack with the first successful use of a virtual joystick ([/virtual-joystick/3015-4951/](#)) in this God of Waresque brawler game.

Modern Combat: Sandstorm (/modern-combat-sandstorm/3030-30857/)

Again, Gameloft innovated with the first successful FPS game on the iPhone. Using their virtual joystick in conjunction with a "swipe anywhere to aim" concept turned out to be the winning control scheme for their game, and many new FPS games to come on mobile devices.





Street Fighter 4 (/street-fighter-iv/3030-20456/)

On March 10, 2010, Capcom released their famed fighting (/games/?sort=release\_date&filter\_type=genre&filter\_value=9/) game on the iPhone and iPod Touch, *and it worked*. According to the lead producer of the game, Takeshi Tazuka, the team spent almost 10 months designing the fighting game controls to work well on a touch screen. The success of Street Fighter 4 on a touch screen was an important factor in bringing more major game titles to touchscreen devices in the future.

N.O.V.A (/nova/3030-29510/)

While the indie game, Bike or Die 2, was among the first to allow for full on-screen control customization, N.O.V.A. was the game that brought the idea into more widespread acceptance. By allowing the player to completely reposition and resize the virtual buttons and joysticks as they saw fit, it allowed them to play the game however was most comfortable for them. Since then, many games with UI customizing options have been released.

#### Game appearances

	The Legend of Zelda Wii U (Working Title) (/the-legend-of-zelda-wii-u-working-title/3030-41355/)	2016	WIIU (/wii-u/3045-139/)
	Project Guard (Working Title) (/project-guard-working-title/3030-46595/)	2015	WIIU (/wii-u/3045-139/)
	Don't Get Crucified (/dont-get-crucified/3030-47198/)	2015	PC (/pc/3045-94/) ANDR (/android/3045-123/) BROW (/browser/3045-140/)
	The King of Fighters '97 OL (/the-king-of-fighters-97-ol/3030-48336/)	2015	ANDR (/android/3045-123/)