

I'm not a robot 
reCAPTCHA

Continue

Bluetooth low energy android programming

Bluetooth's power-hungry nature has made it impractical in the past for many types of wireless devices. Bluetooth Low Energy is changing this, allowing new types of devices that can operate with small batteries for months or years. For example, you'll be able to put a cheap, small device on your keychain so you can track the location of your keys from your phone. The device's battery will take a whole year without any recharge required. The problem with Bluetooth RELATED: More than headsets: 5 Things you can do with Bluetooth Bluetooth is a wireless protocol that allows nearby devices to communicate across radio waves. If you used it, it was likely to pair a wireless headset with your smartphone or use a wireless keyboard with an iPad or other kind of tablet. It all does so without needing any additional hardware or software support – as long as both devices support Bluetooth, you're good to go. The problem with Bluetooth was that it works just fine with devices you'll regularly recharge, such as headsets, mice, and keyboards. Bluetooth is undefeated for a whole range of other potentially useful electronics. Want to create a cheap little sensor that communicates wirelessly with your phone? That wouldn't be possible — not unless you wanted to restart the sensor every day. Bluetooth Low Energy Bluetooth 4.0 offers different types of standards: classic, low-energy (LE), or both. Bluetooth Low Energy doesn't actually lower power consumption for all types of devices — for example, wireless stereo headsets probably won't consume less power with Bluetooth Low Energy than they would if they used classic Bluetooth. The headset should send and receive a lot of audio data while using it; its Bluetooth radio does not have any time to switch off or enter low-power mode. Bluetooth LE simply enables new types of devices for which the original Bluetooth was poorly suited. Devices that do not need to continuously send data or that only need to send small pieces of data can operate with very low power consumption. RELATED: What is NFC (Near Field Communication), and what can I use it for? Apple appears to be betting that Bluetooth LE will eliminate the need for NFC, providing a wireless interface that everything NFC can and more. They may be right, as Bluetooth LE can be used for many of the same things, provide additional wireless range and eliminate the need for separate NFC hardware in smartphones. Smartphone Support To use Bluetooth Low Energy gadgets, you need a device - probably a smartphone - that supports Bluetooth LE. All current, modern smartphones should support Bluetooth Low Energy. Apple introduced support in iOS 5, Google introduced support in Android 4.3 (though Samsung, HTC and other manufacturers added their own Bluetooth LE support earlier), and Microsoft added support in Windows Phone 8. Even BlackBerry 10 devices support Bluetooth LE. If your current smartphone does not support LE, your next one probably will. Smart Tags Smart tags are a type of Bluetooth LE gadget that really shows the technology's potential. The most hyped upcoming example of smart labels is tile. Essentially, you can buy smart labels for cheap – \$20 each in the case of tile tags, although we would expect the price to drop over time. You can attach this little tag to anything you like and it will communicate with your phone over Bluetooth LE, so your phone can keep track of its location. Each tag will last a whole year without any reboot required. For example, you might want to attach a smart tag to your keychain. You can then track the location of your keychain from your smartphone; see how far you are from it and ring it (if the tag contains a speaker, as the Tile tags will). The age-old problem of the misplaced key chain will be solved. Here's another example: You can leave a smart tag in your car when parking in the parking lot. The app you use to connect with the smart labels can keep track of the last location it's seen your labels on, so it can guide you back to the smart tag you left in your car. You can also attach smart tags to other objects. For example, you might want to put one in your laptop bag or your wallet. You can configure an app to play an alarm if the object starts to get too far from you, giving you a warning if you leave something behind or someone steals it. More examples Bluetooth LE can also be useful for a variety of medical and fitness devices. For example, a blood glucose or pressure monitor can report its status over Bluetooth LE without using a lot of power. Fitness monitoring sensors can report heart rate, cycling rotations, running speeds and other data wirelessly. Sure, it was possible without Bluetooth LE, but now it will actually be practical — such sensors can be cheap and need months or years without any reboot. A typical digital watch can even incorporate Bluetooth LE to communicate with a smartphone, display simple notifications for incoming calls, SMS, and emails while maintaining a year or more of battery life. Smartwatches with higher-powered screens and more features will continue to last just a few days, of course. Mainstream phones already support Bluetooth LE and devices taking advantage of it are already out, with many more on the way. Bluetooth LE so that a whole new category of wireless technology that just wasn't feasible before. Image Credit: comedy_nose on Flickr, William_Hook on Flickr, Kárlis Dambráns on Flickr Whether you're a computer gamer or a mobile gamer, there are some games that just play better on a controller. A mouse and keyboard may be more accurate, but are cumbers to use with limited space or on a sofa. Bluetooth controllers hit that sweet spot between the two. But not all Bluetooth game controllers created equal. Some are designed specifically for Android devices, and others are true console controls working across all platforms, such as the Xbox One controller. To help you make the decision, we've compiled a list of the best Bluetooth controllers for Android and PC gaming. Looking for more mobile accessories? We have a guide for that! The best Bluetooth game controllers: Gamesir T4 ProRazer Raju Mobile Controller8Bitdo SN30 Pro 28Bitdo M30Editor's note: We will be updating this list of the best Bluetooth game controllers regularly as new devices launch.1. Xbox One Bluetooth ControllerThe Xbox One Bluetooth controller is fantastic everywhere, whether you're playing on a game computer, PC, Mac, or Android device. Plus, if you play in console, you may already have one. There's a reason many other options on the rest of the list look like Xbox controllers. The design has been tried and true. It feels great in your hands with excellent control rods and reacts triggers. The D-pad on the newer Bluetooth version is much better than the original Xbox One controller, but for retro games or fighting games there may be better options. The Xbox One Bluetooth controller takes two AA batteries and should take about 40 hours. You can also invest in the more environmentally friendly Xbox One Play & Charge Kit, which doesn't quite have the longevity at 30 hours. It also features a 3.5mm jack right at the top of the controller. 2. Xbox One CoreWhile the Xbox One game controller may be what's known, the Xbox One Core controller is a look at what's next. It's still in the pre-order phase, but the Core controller is what you'll pair with the new Xbox Series S and Series X when they start. See also: Xbox Series X vs S: Which next gen console is the one for you? At first glance, it reminds of the current controller, but the small differences have the potential to make a big difference. For starters, the D-Pad is rounded to look like that of the luxury Xbox One Elite controller. This should provide a better response than the simple four-way pad that replaces it. Microsoft also revamped the bumpers and triggers, adding a dotted texture for better grip at the heart of the action. We don't yet know how the Xbox will stack One Core controller's battery life, but it's hard to imagine a lot of change from the previous generation. It also retains the same 3.5mm headphone jack, and the controller features a new share button. After all, playing is more connected than ever, so you have to show off your highlights.3. Sony DualSenseThe Core Bluetooth game controller is a look at the future of Xbox, but Sony's DualSense controller is what you'll pair with the new PlayStation 5 when it launches. It likes the same design cues from DualShock's previous controllers, but the new DualSense looks more like a spaceship than anything else. See also: Sony PlayStation 5 buyer's guide One of the biggest changes to accompany the new generation the white controller. Most previous DualShock options are back right out of the box, but the DualSense is to match the PS5 itself. As for other important changes, the DualShock rocks a customizable trigger setup, which means that you'll feel different answers when communicating with different parts of your environment. Sony's DualSense also holds a 3.5mm headphone jack and a built-in microphone to chat with your friends. A create button is present to help you share your content and go live on your favorite streaming platforms. For better or worse, you won't be able to just replace AA batteries and keep playing - the controller charges exclusively via USB-C. DualShock 4 PS4 controller If you don't plan on picking up a PS5, you might not need to jump into a DualSense controller right away. Instead, you can probably stick to a trusted DualShock 4 controller and choose from more than a dozen colors. A simple look at the DualShock 4 and you know it's a PlayStation controller. It sports the same look and feels that you're used to, packed with a headphone jack, touch panel, and more. If you're a mobile or computer gamer, it makes perfect sense to pick up the DualShock 4. Of course, it might not be as smooth from a transition if you come from an Xbox background. Sony has refined its fourth-generation DualShock controllers with sensitive triggers and even better stick controls. The built-in light bar is another unique feature, though it doesn't do much beyond the atmosphere for your game sessions.5. SteelSeries Stratus DuoThe SteelSeries Stratus Duo features a rechargeable battery rated for 20 hours of use. It's also significantly less colorful, with a sleek all-black look. The Stratus Duo is a lightweight and easily portable Bluetooth game controller. In addition to working over a Bluetooth connection, the Stratus Duo can connect wirelessly on Windows and Steam via 2.4GHz. It's perfect if your desktop computer doesn't have Bluetooth – just plug in the USB wireless adapter that comes in the box. Check out our full SteelSeries Stratus Duo review for a more detailed look, but we found the device to be excellent for both mobile and computer gaming. The only major complaints were a lack of USB-C charging, which is an oversight in 2019, and a slightly mushy D-pad. The labeling on the buttons is also very difficult to read due to the grey-on-black color scheme. Also Read: SteelSeries Stratus Duo review: The best premium mobile gaming controllerThe Stratus Duo is best along with a phone stand or SteelSeries SmartGrip when playing games on a phone. It's significantly lighter than the Stratus XL at 245 grams, so it's a more portable choice for gamers on the go.6. GameSir T4 ProThe GameSir T4 Pro controller is Bluetooth compatible, but it also has a 6.5' cable if you prefer to use it wired. His ergonomic design feels nice in your hands while playing for long periods of time. The T4 Pro is a cheap, controller for computer players. There's an asymmetric vibrating motor with five different speed levels to improve your gaming experience. Improve, feel every accident or explosion, helping to stay immersed in the game. You also have the option to adjust the automotive vibration intensity if you prefer a more muted gaming experience. Aside from ergonomics, the design of this game controller is really cool. It has a semi-transparent coverage so you can see the inner workings of the controls. Then, on the outside, both the D-pad and the right joystick are LED backsliders. You can customize the intensity of the LED lighting if it's too bright. This Bluetooth game controller is designed specifically for PC Windows version 10, 8.1, or 8.7. GameSir's T4 Pro controller has a GameSir MCU chip that gives you a faster response and higher overall performance while playing.7. Razer Raju Mobile ControllerIf you desire after more of a premium Bluetooth controller for mobile gaming, try this one from Razer. The Razer Raju Mobile Controller brings all the bells and whistles you'd expect from a high-end Bluetooth controller and then some. It is made of premium materials and textured plastic that feel excellent in hand. This is one controller you don't want to put down. Check out our full review below. Also Read: The Razer Raju Mobile Controller is incredibly (suffering) expensiveThe layout and design of the controls is remarkably similar to that of the Xbox One, with the added feature of a built-in phone clamp. It has rated a rechargeable battery for 23 hours of game time, two USB-C cables for charging or setting up a wired connection to your phone, and a hair-trigger switch to get those shots off even faster. It's the most feature-packed Bluetooth controller for mobile gaming on the list, but also the most expensive. In our testing, the controller himself performed flawlessly. The only issues we encountered were related to mobile gaming controller support, and even that is partially corrected with button reassignment and more in Razer's dedicated mobile app. As the mobile gaming market evolves, expect it to improve naturally.8. 8BitDo SN30 Pro 2The 8BitDo SN30 Pro 2 is compatible with Nintendo Switch, Android, Windows, macOS, and Steam. And although it looks like a retro controller, it has all the features you want from a modern Bluetooth game controller. You can use the controller via Bluetooth or via a direct USB connection. Even better, the SN30 Pro 2 comes in a variety of colors classic consoles like the GameCube and Nintendo 64. The SN30 Pro 2 is a retro controller with all the features of a modern Bluetooth controller. It has a full button set, including home and screenshot buttons. It has clickable joysticks, junk vibration, and even motion controls. For something that looks as retro as it does, it really packs a punch in terms of functionality. If you're craving the old school feel of retro controllers but don't want to sacrifice modern technology, it's good Check out: 15 best retro games for Android.9. 8BitDo M30If you are looking to use a Bluetooth game controller Seg Genesis, that's it. The controller is also compatible with Nintendo Switch, PC, macOS and Android, but it's designed with Sega's classics in mind. You can play Sega's classic with modern features like a USB-C port and turbo functionality mapping. The M30 is the best Bluetooth, retro-looking controller for Sega Genesis Fans. Its ergonomic design fits comfortably into your hands, so you spell for hours at a time without taking a break. Both the D-pad buttons and the shoulder buttons feel great and are highly responsive.8BitDo's M30 controller is a large, cheap retro controller. This is especially a great option for fans of the Sega Genesis console who want a Bluetooth controller with modern features. Even if you don't have a Sega Genesis, the controllers are still nice to like and easy to play. See also: Play your games throwback style with an 8BitDo SN30 controllerThat's it for our list of the best Bluetooth game controllers on the market. We'll add more as they become available! Available!