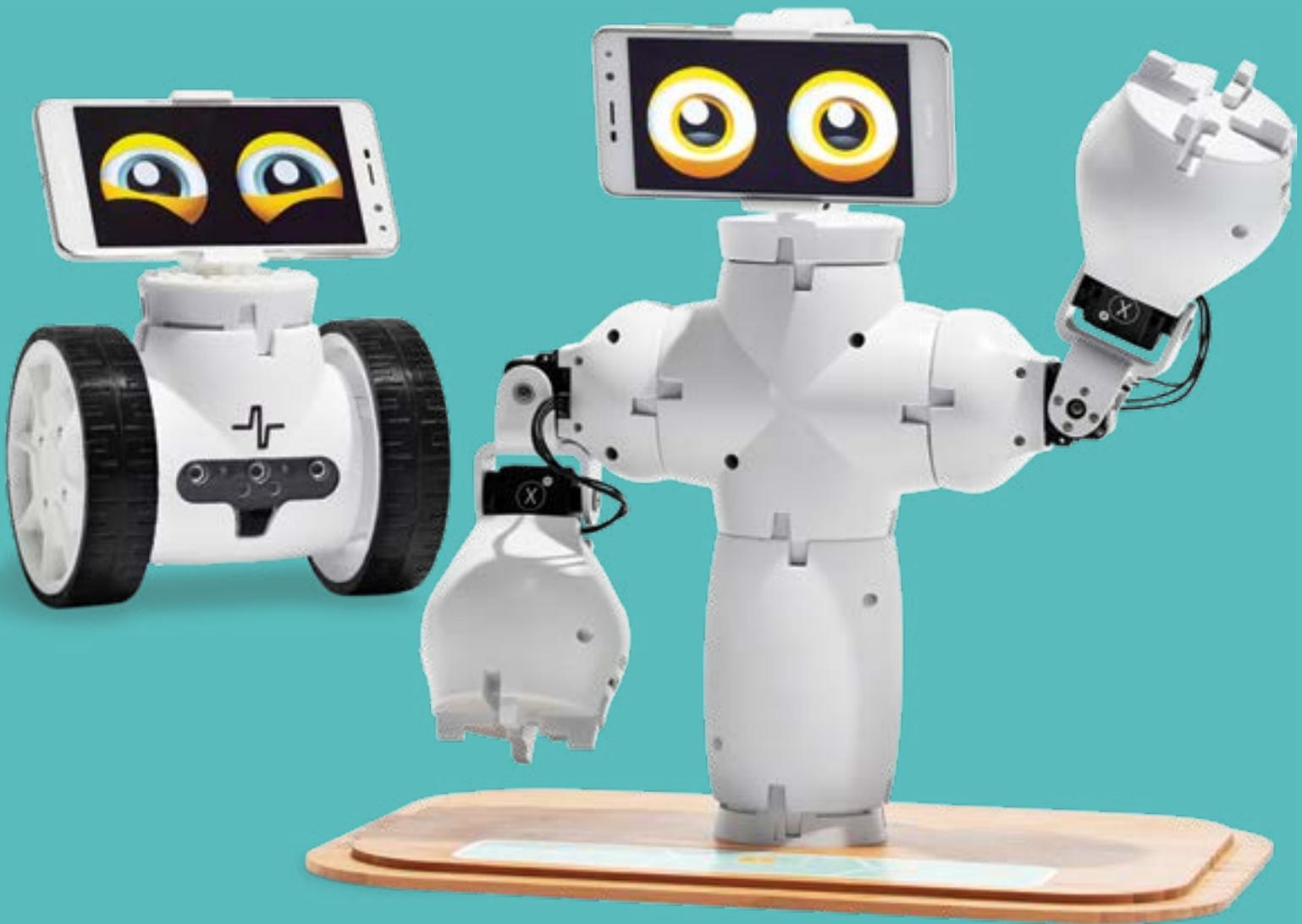


fable

 Shape
Robotics



Frequently Asked Questions

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Product Information

What sensors/inputs does Fable have?

The following sensors/inputs can be used in the Fable system:

Fable Blockly:

- **Camera** – Fable can use your computer's webcam or a USB camera. The camera can be used to stream video, snap pictures, and detect motion and color.
- **Keyboard** – The Fable system can use any keyboard. The keyboard use ranges from regular typing to using specific keys to trigger a specific behavior. For example, you can use the arrow keys to drive the spin module.
- **Microphone** – Fable can use your computer's microphone or peripheral microphone devices that are plugged into your computer. The microphone senses the noise levels around the microphone's location.
- **Time** – The time that has passed since the program was started can be read and used. For example, time measurements can be used in mathematical formulas that control the robot.

Fable Joint Module:

- **Motor angle** – The joint module can measure the angle of both its motors. This is done with a precision of 0.29 degrees and in the range from -90 to 90 degrees.
- **Motor speed** – The joint module can measure the speed at which its motors move. It can be measured both when the module is moved manually and when it is programmed to move itself.
- **Motor torque** – The joint module can measure the force with which its motors turn.

Fable Spin Module:

- **Motor angle** – The spin module can measure the angle of both its motors. This is done in the range from -32,768 to 32,767 degrees, marking a complete revolution every 360 degrees in each direction.
- **Motor speed** – The spin module can measure and change the speed at which its motors move.
- **Headlights** – The spin module has headlights, like a car.
- **Ambient/directed light detection** – The spin module can detect light sources. The current version allows a user to point the spin sensor array to a light bulb and detect the intensity. Similarly, the spin module can detect the intensity of ambient light.
- **Proximity detection** – The spin module can detect objects that are a short distance in front of its sensor array.
- **Color detection** – The spin module can also identify predefined colors. This feature works best when used together with the spin module headlights. More light means better detection.
- **Infrared communication** – The spin module can use its own IR components to send and receive messages in the infrared wave spectrum. For example, one spin module can send a specific letter to another module by using robot-to-robot communication.

Fable Face app/Fable Blockly (on smartphones, iPad, and Chromebook):

- **Accelerometer** – You can use this feature to visualize gravitational acceleration or the device's acceleration in three axes in real time.
- **Touch screen** – Smartphones, iPads, and select Chromebooks (those that have a touch screen) can utilize this powerful feature and read the number of fingers touching the screen or the location of the finger on the screen (ranging from -100 to 100 on both the x- and y-axis).
- **Geolocation** – You can use this feature to visualize the geographical coordinates (latitude, longitude, altitude) of the device in real time.
- **Battery level** – You can check the battery level of all active modules in the Fable system.

What are the supported platforms for Fable Blockly?

The following platforms can run Fable Blockly:

- **Windows 7, 8, 8.1** – 64-bit systems only. Additionally, you need to download and install the drivers for the Fable Hub. See the “What are the requirements to run Fable Blockly on my device?” section for more information.
- **Windows 10**
- **Mac OS X** – Requires Yosemite and newer.
- **iPad** – Requires iOS 10.0 and newer.
- **Chromebook** – Requires the device to be compatible with Android. See the “What are the requirements to run Fable Blockly on my device?” section for more information.

The following platforms can run the Fable Face app:

- **Android** – Requires Android 4.4 or newer.
- **iOS** – Requires iOS 8.0 or newer.

What are the requirements to run Fable Blockly on my device?

Depending on your platform, the requirements may vary.

- **Windows 7, 8, or 8.1:** You need to download and install the drivers for the Fable Hub. See the “How do I install the Fable Hub driver for Windows 7 and 8?” topic in the Troubleshooting section of this FAQ.
- **Chromebook:** Requires the Google Play Store to be enabled on the device. Please check here to see if your Chromebook is compatible with Fable Blockly.
- **Chromebook/iPad:** It is likely you will need to run a critical one-time update to every single one of your Fable Hubs before you can use any Fable modules on these two platforms. If your device cannot find a Fable Hub, this means you should update that hub. After it is updated, the hub should be discovered by your device. Please contact support@pitsco.com for assistance on how to update or if you still cannot discover the hub even after updating.

What are the differences in Fable Blockly on the different platforms?

The majority of features in Fable Blockly are supported across all platforms. The following is a list of feature differences:

- **Connecting a Fable Hub** via USB cable on Windows/Mac versus vs Bluetooth on Chromebook/iPad. Bluetooth is slightly slower, so expect a small delay if you’re attempting to execute something extremely time sensitive.
- **Camera** – This is not available on Chromebook/iPad.
- **Fable Face app** – This will not be able to connect to Chromebook/iPad.
- **Plotting** – This is not available on iPad.
- **Custom sounds** – This is not available on iPad.
- **Programming language** – Python® is available only on Windows and Mac. JavaScript is available only on Chromebook and iPad.
- **Projects** – These are not available on iPad. See the “How do I import project files?” section for more info.

What programming languages can I use to program my Fable robot?

Across all devices, you can currently use three different frameworks to program Fable:

- **Blockly** – This is a powerful block-based programming editor. It is extremely versatile and perfect for beginners since it requires no coding skills to select one of the available blocks and just run it inside the app. An advanced menu is available for more experienced users and supports more advanced features such as math, functions, logic, and variables.
- **Python (Windows and macOS only)** – This is a high-level, object-oriented programming language. It has easy-to-learn syntax and is perfect for both novice and advanced programmers.
- **JavaScript (Chromebook and iPad only)** – This is a high-level programming language suited for beginners that has a low barrier of entry due to its simple syntax and ability to ignore small errors (such as missing semicolons). It is one of the most used programming languages in the world and prioritizes functions.

What permissions do I need to grant to the apps?

Some features on both Fable Blockly and the Fable Face app require special permissions. The following is a detailed list of those permissions and the reasoning for needing them:

- **Location** – Both apps require Bluetooth to connect to a Fable Hub. On Android 6.0 and newer, the Location permission needs to be granted before the device can scan, discover, and communicate with Fable Hubs. More information is available [here](#). Additionally, any user can use the location of the device if their custom Blockly/Python/JavaScript program uses the geolocation sensor. The location can be reported only if the permission is granted.
- **Storage** – Fable Blockly requires this permission in order to save and load projects. It is also needed when playing custom sounds and saving plot images.
- **Microphone** – Fable Blockly requires this permission when the user uses the Sound Level feature of the app. This feature uses the connected device's microphone to report the loudness around the device.
- **Camera** – Fable Blockly requires this permission for all of its camera features – taking pictures, detecting colors and motion, and so on.

How do I connect the Fable Face app with Fable Hub?

1. Install the Fable Face app from the app store (for Android or iPhone).
2. Connect the Fable Hub to a computer so that it lights up in a color.
3. Activate Bluetooth on your mobile device.
4. Start the Fable Face app.
5. The Fable Face app should now find your hub. Select your hub's ID and tap Connect.
6. When the app connects to the hub, the app will display a set of eyes, which can be programmed using Blockly.

Troubleshooting:

Sometimes, there are issues with the Fable Face app. For example, the app cannot find any Bluetooth devices or it will not connect to the hub. If you experience issues with the Fable Face app, please try the following:

- Close and restart the app.
- Turn off Bluetooth and turn it back on shortly after.
- Remove power from the hub by unplugging it and turn it back on by plugging it back in.
- Make sure you have the newest version of the app.
- (Android only) Go to **Settings > Apps > Fable Face > Permissions** and make sure the Location permission is granted.

If the problems persist, please email us at support@pitsco.com or call us at 800-835-0686. Include the phone model and operating system version you are using.

How do I import project files?

Importing projects in Fable Blockly is extremely easy!

- **Windows and Mac** – Tap the file icon at the top left and then select the **Open Project** option. A file selection screen will open, and all you have to do is find the project and open it.
- **Chromebook** – Select the **Open Project** option. Then, select **Import Project**. The Storage permission is required after this step, so make sure to grant it when the app asks for it.
- **iPad** – This feature is not yet supported.

Can I open projects that were saved on a different system?

Yes! In most cases, you will not notice any problems when opening projects.

If the project was saved using an old version of Fable Blockly, there is a small chance some of the blocks have changed. Our app will try its best to update the old blocks to their new counterparts.

If the project was saved using the newest version of Fable Blockly and opened on an old version, there is a chance the project will not open at all. This depends on the blocks that were used in the project.

If you save a project using **Windows**, you can open it on a **Mac** without any issues and vice versa.

On **Chromebooks**, there are several features from PCs that are not yet supported. The project will open, but it will alert you which sections of the project are not supported.

On **iPads**, the ability to open projects from other systems or devices is not yet supported.

How do I import custom sounds?

In your Documents folder, search for a folder called Fable. There should be another folder inside called My Fable Sounds. Place your sound files in that folder. After doing this, the sounds should show up as options on the block that plays custom sounds.

If one or both of these folders are missing, just create them manually.

At this point, Fable supports WAV and MP3 files.

On **Chromebook**, the Storage permission is required to discover and play custom sounds.

On **iPad**, this feature is not yet supported.

Why do I have to manually connect the Fable Hub to my Chromebook or iPad via Bluetooth?

You must plug in the Fable Hub in order to provide power to it. Because the Chromebook and iPad do not have a USB port, you can power the hub using any power outlet in the room.

Connecting the Fable Hub to a Chromebook or iPad, however, requires Bluetooth:

- **Chromebook** – Some system features are not made available to apps. USB connection is one of them. For some features, this is due to the device being different than a smartphone (for example, a Chromebook cannot make phone calls), but for others, it's for undisclosed reasons. Here is the list of features that Google doesn't support on Chromebooks at this point.
- **iPad** – This has to do with Apple's control over what apps get access to the Lightning port. This is determined on an app-to-app basis.

How do I get started with 3-D printing for Fable?

You can expand Fable with your own 3-D printed parts. We have some ready-to-print STL design files available, which can be downloaded and 3-D printed as they are, remixed, or used for inspiration to design your own parts. The files can be found on our Thingiverse page.

Steps of 3-D printing for Fable:

1. Select a design model, such as a hand for holding a flag.
2. 3-D print it and mount it using a Fable 3-D Adapter Module.
3. Build and program your Fable robot and then test the design.

How do I start designing my own part?

To design your own parts, we recommend starting with this template model.

Which 3-D design program should I use?

There are a lot of free and trial options for various experience levels and price sensitivity. Here are some options to try out:

- Tinkercad – <https://www.tinkercad.com/>
- Fusion 360 – <https://www.autodesk.com/products/fusion-360/students-teachers-educators>
- Onshape – <https://www.onshape.com/>

How do I mount the 3-D printed part to Fable?

The 3-D parts are designed to be fastened with screws or glued on a stand-alone Fable connector, such as the 3-D adapter module.

In order to mount 3-D printed parts on a connector, we recommend using screws for plastic with a diameter of 2 mm and a length of 10 mm minimum. The following link can be used for screws that are 2 mm x 10 mm:

<https://us.screwtek.com/en/shop/detail/stp/STP330200100S.html>

Longer screws can be used in cases where you need greater strength or when the mounting holes have a greater depth. Screws for wood in the recommended dimensions will probably work as well.

Happy 3-D printing!

Troubleshooting

How do I install the Fable Hub driver for Windows 7 and 8?

- If you are using Windows 7 or 8, you will need a driver for the Fable Hub. Follow this video tutorial or the following steps to install the driver: <https://youtu.be/AF9ibh-Lw4A>.
- 1. Windows will alert you that the driver is not installed. When this happens, go to a Fable set's product page on Pitsco.com, go to the Downloads section, and download the driver. Unzip it to a folder.
- 2. Locate the hub within Windows' Device Manager under **Other devices**, right-click it, and select **Update Driver Software**.
- 3. Browse for and open the folder containing the driver that you downloaded. Accept if Windows warns you that the driver is unsigned.
- 4. The hub driver should now be installed. It can be checked under the **Ports** section in the Device Manager. The hub will automatically be assigned as a COM port.

Why is my Fable Hub not found/connected?

Symptoms: The Fable Hub is not detected by the computer or software. The issue can be confirmed by inspecting the status window in the software.



Possible issues and suggested solutions:

- **You are running Fable Blockly on an iPad or Chromebook** – See the “Why is my Chromebook or iPad unable to find a Fable Hub?” section.
- **Hub is frozen** – Unplug the hub from the USB port and plug it back in.
- **Port is frozen** – Restart the computer.
- **Hub is disabled by operating system** – See the “How do I enable a disabled Fable Hub?” section.
- **Operating system is not supported**
- **Driver not installed (Windows 7 and 8)** – Install driver and inspect Device Manager to verify. See the “How do I install the Fable Hub driver for Windows 7 and 8?” section.
- **USB cable is broken** – Replace cable.
- **Hub is broken** – Contact us at support@pitsco.com for assistance.

Why is my Chromebook or iPad unable to find a Fable Hub?

On Chromebook and iPad, plugging in the Fable Hub is only the first step to using it. You also need to manually connect to the hub via Bluetooth. Tap the **Fable Hub** icon at the top-right corner of Fable Blockly. This will take you to the connection screen where you'll be able to connect.

You need to run a critical one-time update to your Fable Hub before you can use any Fable modules on Chromebook or iPad. If your device cannot find a Fable Hub, this means you should update that hub. After it is updated, the hub should be discovered by your device. Please contact support@pitsco.com for assistance on how to update or if you still cannot discover the hub even after updating.

How do I enable a disabled Fable Hub?

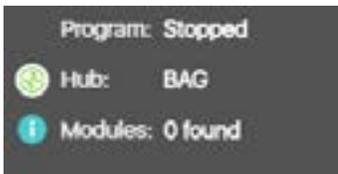
Symptoms: Sometimes the operating system will disable the device due to various reasons. This will cause the hub to show up as not connected in the interface.

Suggested solutions:

- **Windows** – Re-enable in Device Manager: <https://www.lifewire.com/how-to-fix-code-22-errors-2619234>
- **Mac** – Reset SMC: <http://osxdaily.com/2015/08/09/mac-usb-ports-not-working-fix/>

Why is my Fable Joint or Spin Module not found?

Symptoms: The module does not show up with its ID in the graphical user interface.



Possible issues and suggested solutions:

- **The Fable Hub is not connected** – See the “Why is my Fable Hub not found/connected?” section.
- **The module is not turned on** – Even if the LED has a color, the module might be turned off while it’s charging. Press the module’s button to see if the color changes; if it does, it means it is turned on; if not, then check the on/off switch.
- **The module has crashed** – Try restarting the module by toggling the on/off switch.
- **The module is broken** – Contact us at support@pitsco.com.

Why is my module blinking red and stopping?

Symptoms: The module blinks red and stops moving for a period of time.

Possible issues and suggested solutions:

- **A motor on the module has been overloaded** – In other words, the program commanded it to perform a movement that it does not have the strength to perform. To solve the issue, modify the program and/or robot configuration to avoid damaging the motor.
- **A motor has overheated** – Let the motor cool down.

Why doesn't the speak block produce speech?

- **Windows/Mac** – The speak feature requires Internet. Please ensure your Internet connection is stable.
- **Chromebook/iPad** – Ensure that you have at least one voice pack installed, preferably one for every language you intend to use. This can be done from the system settings of the device.

Generally, the speak feature requires some time to activate the first time it’s asked to say something. If it takes longer than it takes your code to finish execution, you will not hear any speech.

If that happens, try running your code again or try adding a wait instruction at the end of your program (for example, “wait for 1 second” in Blockly or “api.wait(1)” in text programming).

Why can't I connect the Fable Face app to my Chromebook or iPad?

Fable Face cannot be used with Fable Blockly on Chromebook or iPad. This is because both Fable Blockly and the Face app need Bluetooth to connect to the hub, but Bluetooth can connect to only one thing at a time. It is not possible to run both applications at once.



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