

GODIYMODULES Mini USB Host Shield 2.0

GODIYMODULES Mini USB Host Shield 2.0 Instruction Manual

Brand: GODIYMODULES

Model: Mini USB Host Shield 2.0

1. INTRODUCTION AND OVERVIEW

The GODIYMODULES Mini USB Host Shield 2.0 is designed to enable Arduino (specifically Arduino Pro Mini 3.3V/8MHz/328) to function as a USB host. This capability allows the Arduino to communicate with various USB slave devices such as USB keyboards, mice, USB flash drives, and cameras. It also supports implementation of Google ADK (Android Open Accessory Development Kit) for interaction with Android system mobile phones. This shield utilizes an SPI interface for communication with the microcontroller and supports USB hub functionality. It operates at a voltage of 3.3V DC.

2. KEY FEATURES

- Enables USB host functionality for Arduino Pro Mini (3.3V/8MHz/328).
- Compatible with USB slave devices including keyboards, mice, USB flash drives, and cameras.
- Supports Google ADK for Android mobile phone communication.
- Utilizes SPI interface for microcontroller communication.
- Supports USB hub functionality.
- Compact size: 38mm * 18mm.
- Operating voltage: 3.3V DC.

3. SETUP AND CONNECTION

This Mini USB Host Shield 2.0 is designed for use with Arduino Pro Mini (3.3V/8MHz/328) and 3.3V FTDI adapters. Ensure your Arduino board operates at 3.3V to prevent damage.

The shield connects to the Arduino via the SPI interface. Refer to the schematic diagram below for detailed pin connections and component layout.



Figure 3.1: Schematic diagram of the Mini USB Host Shield 2.0, showing power regulation, USB interface, and SPI connections.

Key Connection Points:

- **VCC:** Connect to 3.3V power supply from your Arduino.
- **GND:** Connect to ground.
- **SPI Pins:** MOSI, MISO, SCK, SS (Slave Select), INT (Interrupt), GPX (General Purpose I/O). These pins should be connected to the corresponding SPI pins on your Arduino Pro Mini.
- **USB Port:** Standard USB Type-A female connector for connecting USB slave devices.

Ensure all connections are secure before applying power. Incorrect voltage or wiring can damage the shield or your Arduino board.

4. OPERATING INSTRUCTIONS

Once the Mini USB Host Shield 2.0 is correctly connected to your Arduino Pro Mini, you can begin programming your Arduino to interact with USB devices.

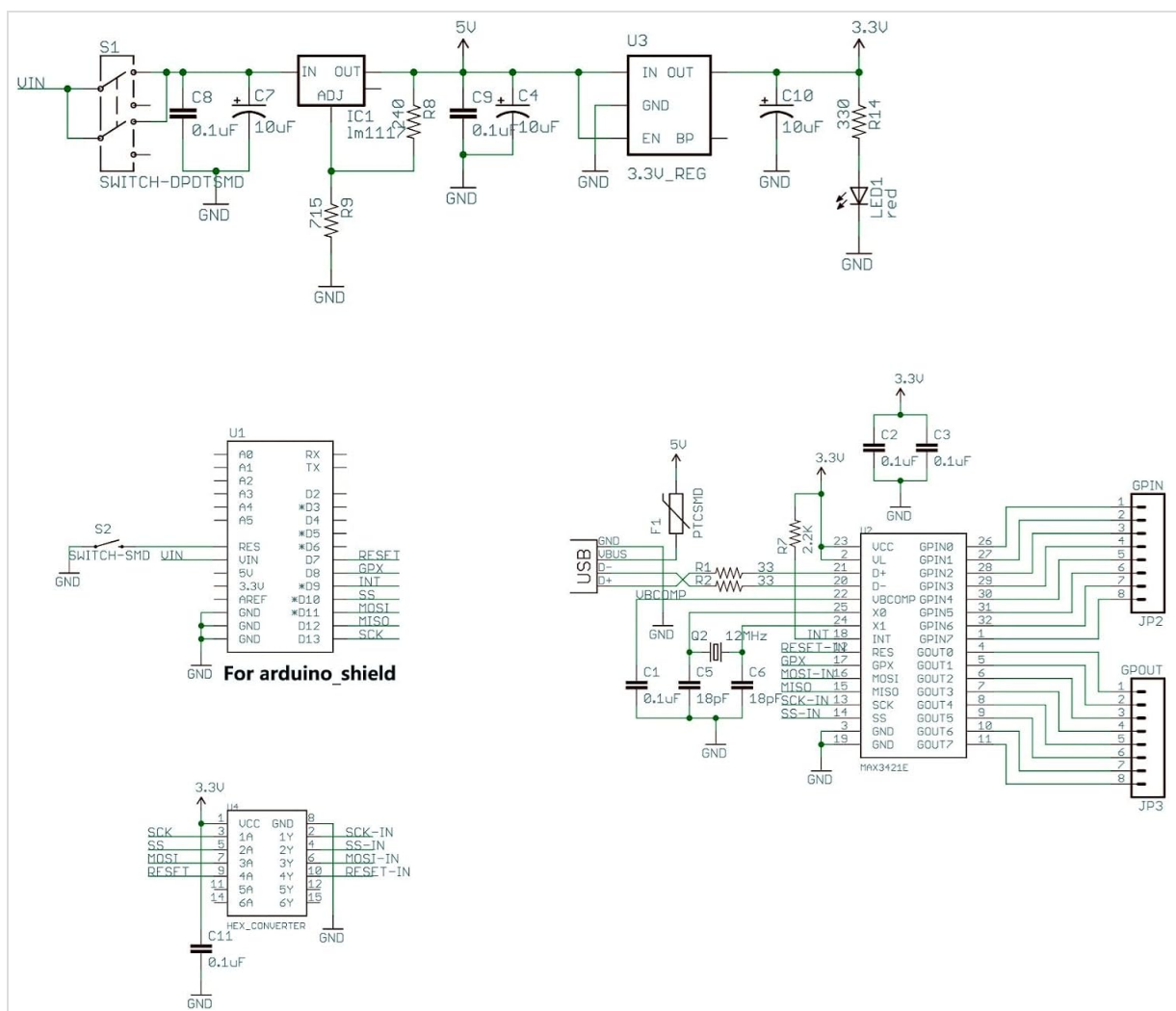


Figure 4.1: Top view of the Mini USB Host Shield 2.0, showing the USB Type-A port, MAX3421EE chip, and pin headers.

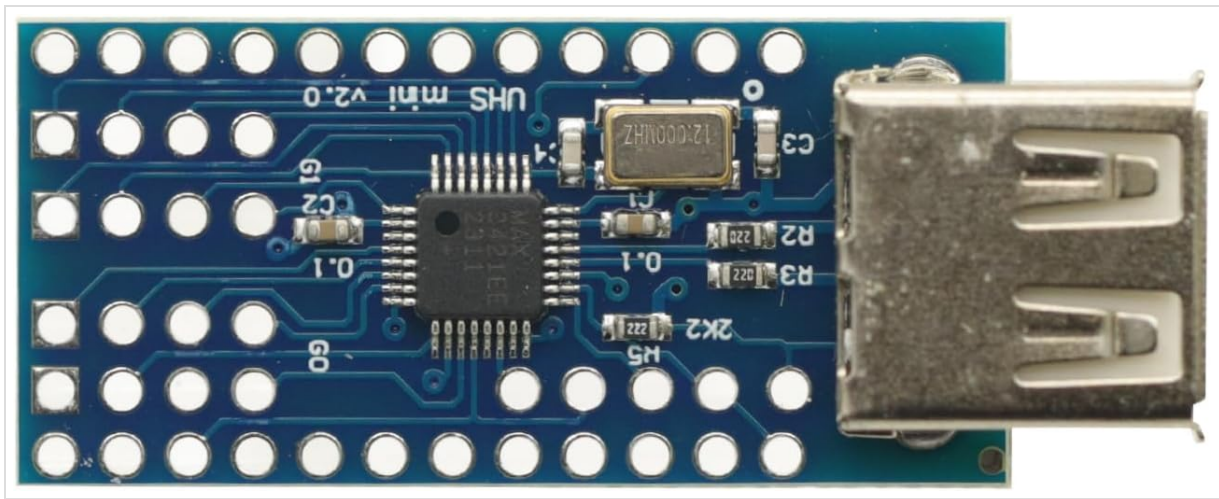


Figure 4.2: Bottom view of the Mini USB Host Shield 2.0, showing additional pin labels and solder points.

Programming for USB Host Functionality:

1. **Install USB Host Library:** Download and install the necessary USB Host Shield 2.0 library for Arduino IDE. This library provides functions to interact with various USB devices.
2. **Connect USB Device:** Plug your desired USB slave device (e.g., keyboard, mouse, flash drive) into the USB Type-A port on the shield.
3. **Upload Sketch:** Write and upload an Arduino sketch that utilizes the USB Host library to detect and communicate with the connected device. Examples for common devices are usually included with the library.

Google ADK Implementation:

For Google ADK applications, the product provides compiled APK installation packages and ADK source files. These resources are compatible with the shield and can be used to develop Android applications that interact with your Arduino project via the USB Host Shield.

5. SPECIFICATIONS

Parameter	Value
Brand	GODIYMODULES
Model Name	Mini USB Host Shield 2.0
Connectivity Technology	USB
Included Components	1pcs Mini USB Host Shield
Operating System Compatibility	Android (for ADK)
Compatible Devices	USB keyboard, mouse, USB disk, Camera, Android system mobile phone
Processor Brand (Controller)	Atmel (referring to compatible Arduino)
Product Dimensions	38mm x 18mm
Net Weight	4.5g
Operating Voltage	DC 3.3V

6. TROUBLESHOOTING

- **Compatibility Issues:** This shield is primarily designed for Arduino Pro Mini (3.3V/8MHz/328). While it may work with Arduino Uno with appropriate level shifters, it is generally not compatible with Arduino Mega 2560 without significant modifications and advanced knowledge. Ensure your Arduino board operates at 3.3V or use proper voltage level conversion.
- **Unclear Pin Labels:** If the silk screening on the board for pin identification is unclear, refer to the provided schematic diagram (Figure 3.1) for accurate pin assignments and connections.
- **Device Not Detected:**
 - a. Verify all connections between the shield and Arduino are correct and secure.
 - b. Ensure the USB Host library is correctly installed and the sketch is properly configured for the specific USB device.
 - c. Check the power supply to the shield and Arduino. Insufficient power can prevent USB devices from functioning.
 - d. Test with a different USB device to rule out issues with the device itself.

7. MAINTENANCE

To ensure the longevity and proper functioning of your Mini USB Host Shield 2.0, follow these general maintenance guidelines:

- **Handle with Care:** Electronic components are sensitive. Avoid dropping the board or subjecting it to excessive force.
- **Keep Dry:** Protect the board from moisture and liquids, which can cause short circuits and corrosion.
- **Cleanliness:** Keep the board free from dust and debris. Use a soft, dry brush or compressed air for cleaning if necessary.
- **Proper Storage:** When not in use, store the shield in an anti-static bag to protect it from electrostatic discharge.

8. WARRANTY AND SUPPORT

This GODIYMODULES Mini USB Host Shield 2.0 comes with a **2-year manufacturer's warranty**. This warranty covers defects in materials and workmanship under normal use.

For technical support, inquiries, or warranty claims, please contact GODIYMODULES directly through their official channels or the retailer from whom the product was purchased. Please provide your purchase details and a clear description of the issue when seeking support.