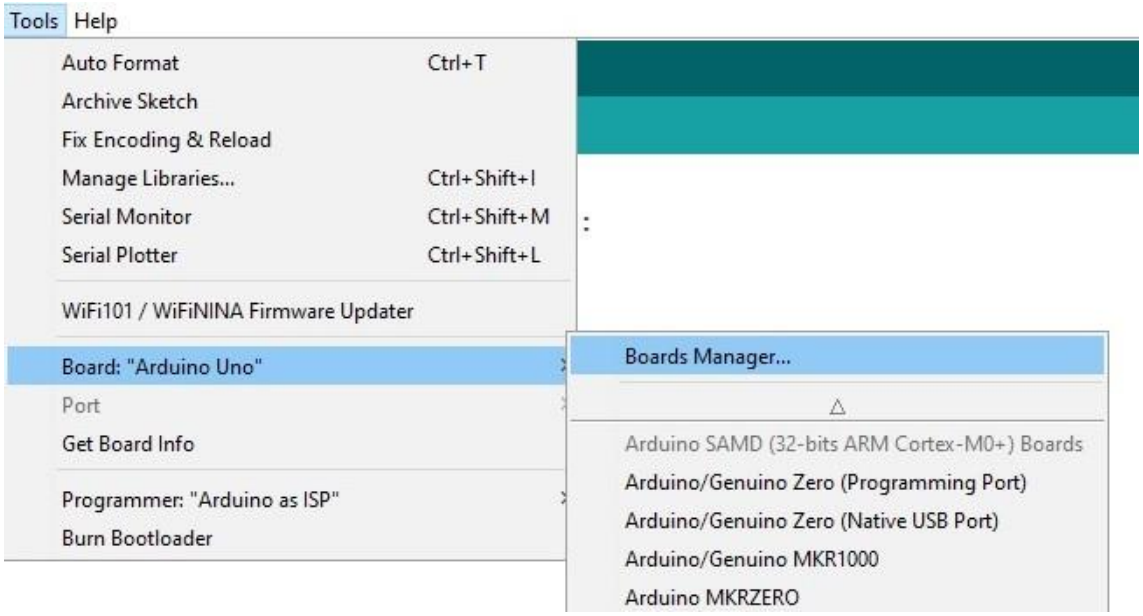
HOW TO PROGRAM GAMERKEY V1 VIA ISP

STEP 1: Download and install Arduino MiniCore core library:

- Download the **Arduino software**, Install the Arduino software, following the instructions for Windows, Mac OS X or Linux
- Follow these instructions to install **MiniCore**: In Arduino, you can install the MiniCore support using the built-in boards manager,
- Open the preferences dialog in the Arduino software.
- Find the "Additional Boards Manager URLs" field near the bottom of the dialog.

- Paste the following URL into the field https://mcudude.github.io/MiniCore/package_MCUdude_MiniCore_index.json
- Click the OK button to save your updated preferences.
- Open the boards manager in the "Tools > Board" menu.

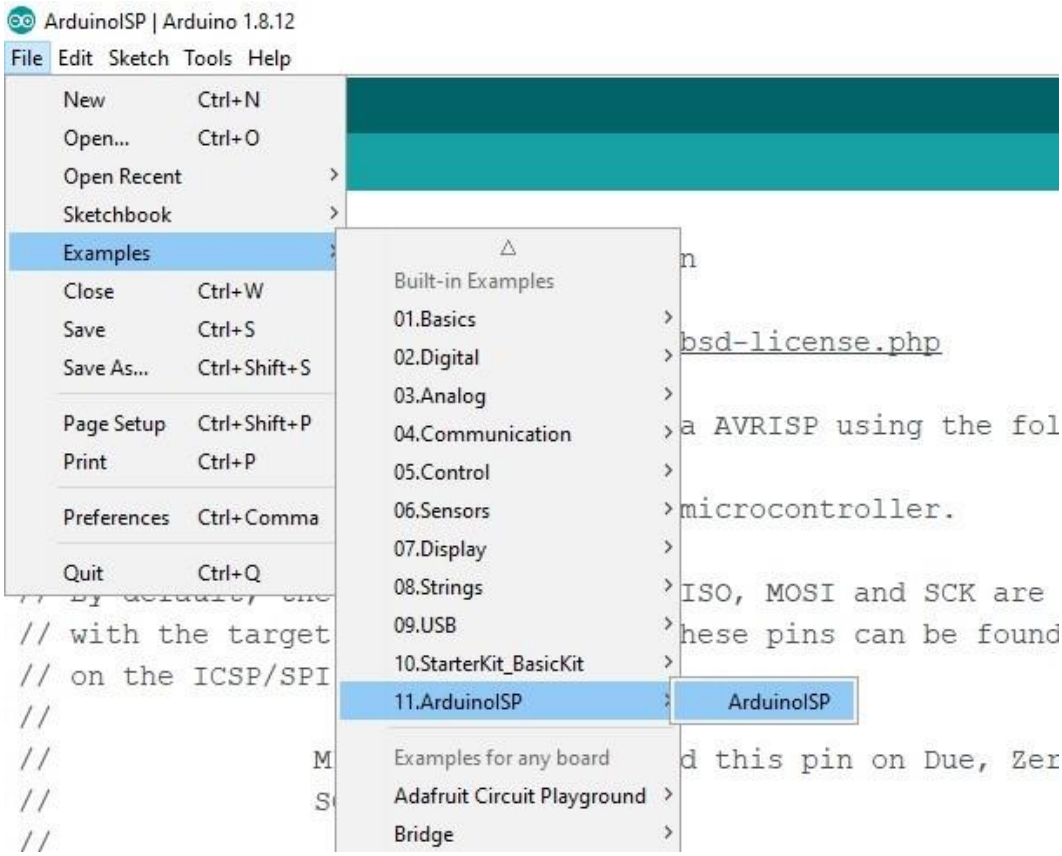


- Select "MiniCore by MCUdude" and click "Install".
- Close the boards manager. You should now see an entry for MiniCore in the "Tools > Board" menu.

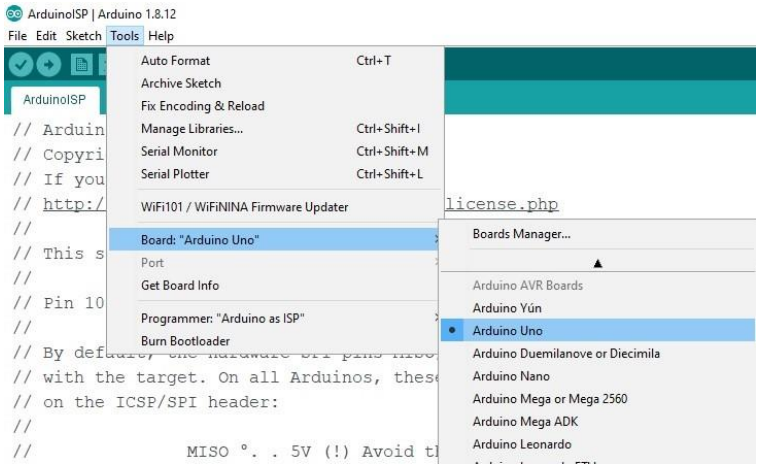
STEP 2: Turning the Arduino board into an ISP programmer:

We're going to use the Arduino board to program GamerKey. First, we'll need to turn the Arduino board into an **ISP**

- Open the **ArduinoISP sketch** from the examples menu.



- Select the board (on Tools > Board menu) and serial port (on Tools > Serial Port) that correspond to your Arduino board.

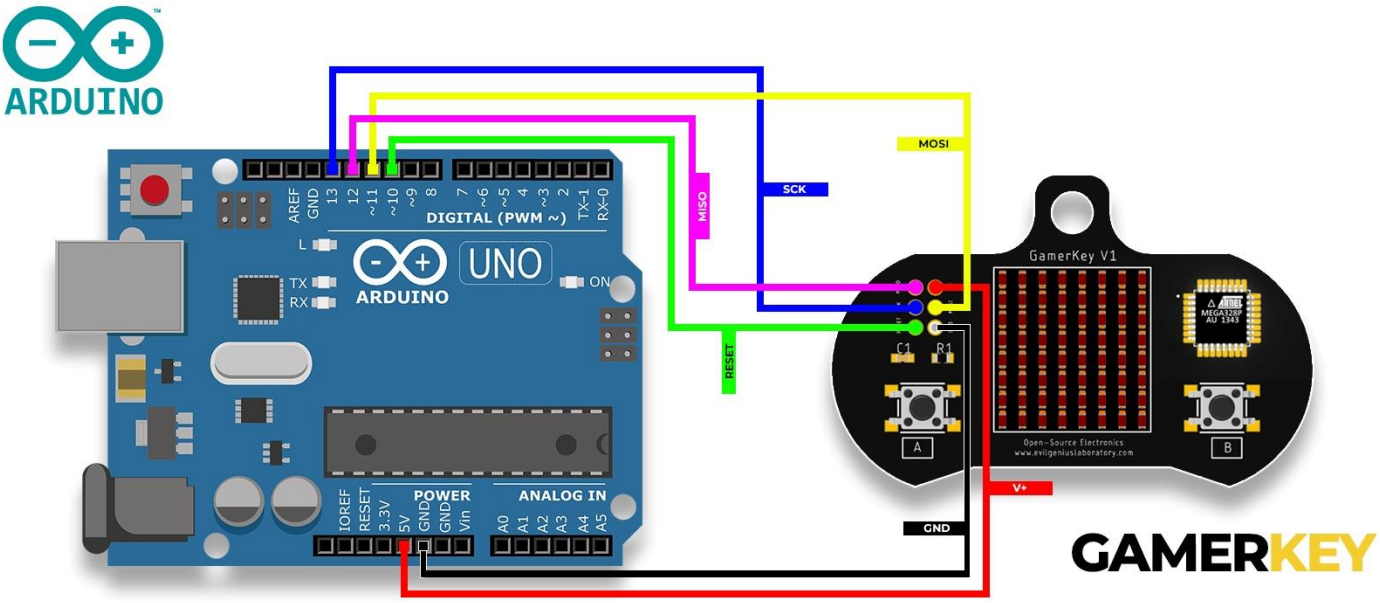


- Upload the ArduinoISP sketch to the Arduino UNO board.

STEP 3: Connecting the Arduino UNO board to GamerKey

NOTE: You don't need to solder the connector to GamerKey, you can just insert the 6 pin header on GamerKey and hold gently bent during uploading of program.

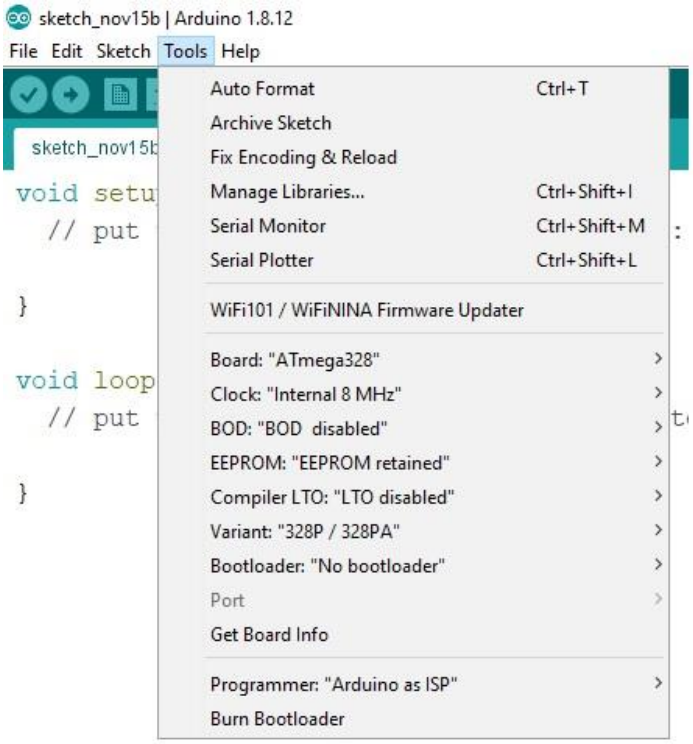
We'll connect the Arduino UNO board to the GamerKey as shown in the **following diagram**:



Arduino Uno Board Pin	GamerKey ISP Connector Pin	Pin Description
5V	V+	+5V
GND	GND	Ground Pin
10	RESET	Reset
11	MOSI	Master OUT Slave IN
12	MISO	Master IN Slave OUT
13	SCK	Serial Clock

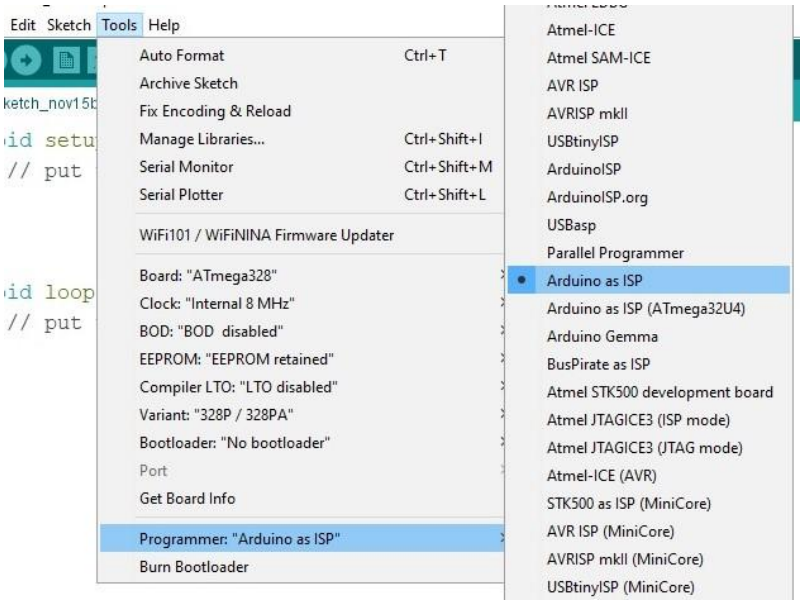
STEP 4: Burn Bootloader on GamerKey:

We can use the Arduino as an ISP to **upload the bootloader** to GamerKey:
NOTE: GamerKey comes with bootloader installed already.



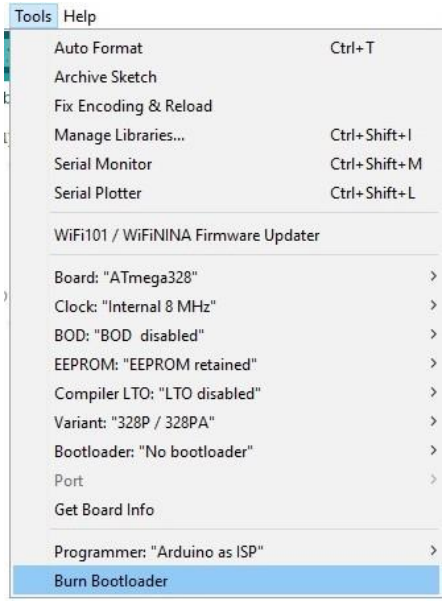
Select "**ATmega328**" from the Tools > Board menu

- Select "**8Mhz (internal)**" from Tools > Clock
- Select "**BOD: disabled**" from Tools > BOD
- Select "**LTO disabled**" from Tools > Compiler LTO
- Select "**328P / 328PA**" from Tools > Variant
- Select "**No bootloader**" from Tools > Bootloader
- Leave the serial port set to your Arduino UNO board
- Select "**Arduino as ISP**" from the Tools > Programmer menu.



Be sure that you have removed the battery from GamerKey.

- Burn Bootloader from the Tools menu.



- You should see "**Done burning bootloader**." in the Arduino software and no error messages. Now you can upload the sketch.

STEP 5: Upload Sketch to GamerKey:

we can use the Arduino as an ISP to upload a program to GamerKey

- Download the Game Sketch from here
- Open the Game sketch with Arduino IDE
- Check the Board (**ATmega328**), the Clock (**8Mhz (internal)**), the BOD (**BOD: disabled**), the Compiler LTO (**LTO disabled**), the Variant (**328P / 328PA**), the Bootloader (**No bootloader**) from Tools > Board menu and leave the serial port set to that of your Arduino UNO board.
- Select "Arduino as ISP" from the Tools > Programmer menu.
- Be sure that you have removed the battery from GamerKey.
- Upload the sketch.

You should see "**Done uploading.**" in the Arduino software and no error messages.

Insert the battery on GamerKey and start to play!

Note: Repeat only step 5 every time you want to upload a different sketch on GamerKey. It's not necessary to burn the bootloader every time. You just need to burn it the first time.