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Makers
Making Change

GameStik Setup Guide

Version 1.2 (May 27, 2019)

GAMESTIK

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Required Software and Hardware:

Latest version of **Arduino IDE:** https://www.arduino.cc/en/main/software

Joystick library (needs to be installed before uploading GameStik firmware): https://github.com/MHeironimus/ArduinoJoystickLibrary

GameStik firmware: https://github.com/makersmakingchange/GameStik/blob/master/Software/GameStik_Firmware/GameStik_Firmware.ino

Built LipSync unit: https://github.com/makersmakingchange/GameStik

(Optional) XBOX console system: https://www.xbox.com/en-US/xbox-one/consoles

(Optional) XBOX Adaptive Controller: https://www.xbox.com/en-US/xbox-one/accessories/controllers/xbox-adaptive-controller

(Optional) 5V DC 2A power adapter or power bank for charging the XBOX Adaptive Controller

GameStik Firmware Installation Instructions:

1. Download and install the latest version of Arduino IDE from the following link: https://www.arduino.cc/en/main/software
2. Download the GameStik firmware from following link: https://github.com/makersmakingchange/GameStik/blob/master/Software/GameStik_Firmware/GameStik_Firmware.ino
3. Visit the ***"ArduinoJoystickLibrary"*** GitHub repository using following link: **[1]** https://github.com/MHeironimus/ArduinoJoystickLibrary
4. Download the ***"ArduinoJoystickLibrary"*** by clicking on ***"Clone or Download"*** button and then selecting ***"Download ZIP"*** option.
5. Extract the ***"ArduinoJoystickLibrary-master.zip"*** file.
6. Copy the Joystick folder to the Arduino libraries folder. An example of path to Arduino libraries folder in Windows: ***"C:\Program Files (x86)\Arduino\libraries"***.
7. Once the folder is copied, the Joystick library should appear in the Arduino IDE list of libraries.
8. Plug the LipSync USB cable into the computer port.
9. Open Arduino IDE and you should be able to see Joystick examples under ***"File>Examples>Joystick"***.
10. Now open the ***"GameStik_Firmware.ino"*** file using Arduino IDE.
11. Select the ***"Arduino/Genuino Micro"*** as the Board and then select the available port number under Tools option.
12. Click on upload button to upload the code.

Setting up the GameStik for PC Gaming:

1. Plug the GameStik USB to any computer or laptop USB Port.
2. Start up the PC game.
3. The GameStik default functions are listed in Table 1 below. To program Button 1 and 4-8, navigate to the control settings within the game.

Note: the GameStik will not behave like a computer mouse outside of the gaming window.

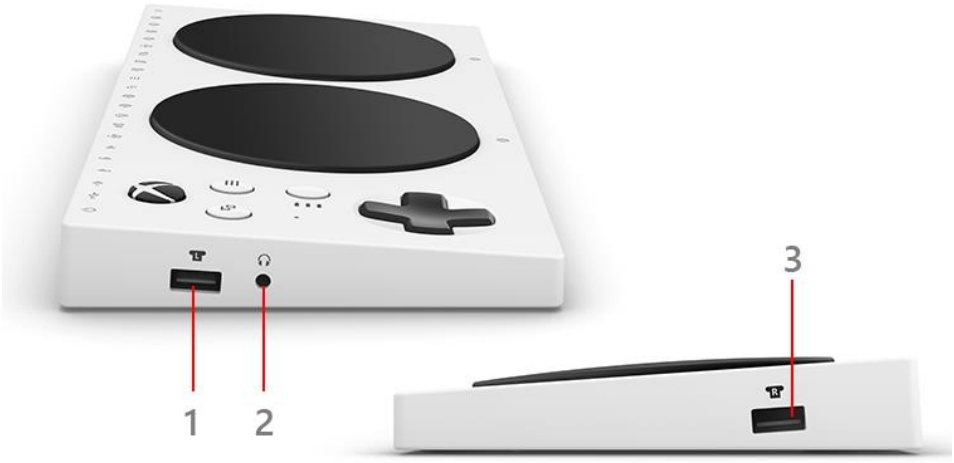
Functions (PC Games):

Action	Function	Time (Seconds)
Joystick (Right)	Move Right on X-axis	N/A
Joystick (Down)	Move Down on Y-axis	N/A
Joystick (Left)	Move Left on X-axis	N/A
Joystick (Up)	Move Up on Y-axis	N/A
Puff	Press Button Number 5	1
Sip	Press Button Number 6	1
Puff	Press Button Number 4	2
Sip	**Press Button Number 1**[1]	2
Puff	Press Button Number 7	3
Sip	Press Button Number 8	3

Table 1: Computer Functions

Note 1: The press button 1 or 2-second long sip is reserved to be used for Xbox Adaptive Controller.

Setting Up the GameStik with the XBOX Adaptive Controller



The XBOX Adaptive Controller features large programmable buttons and connects to external switches, buttons, mounts, and joysticks to help make gaming more accessible. Familiarize yourself with all the buttons on the Adaptive Controller. See section “The Face of the Controller”: https://support.xbox.com/en-US/xbox-one/controllers/get-to-know-adaptive-controller

To setup your GameStik with the Adaptive Controller:

1. Turn on your Xbox.
2. Turn on your Adaptive Controller by pressing the Xbox button.
3. Plug the GameStik USB Cable to either USB Port #1 or #3 depicted in the image above.
4. Follow the instructions here to connect the Adaptive Controller using a USB-C cable or pair it wirelessly to the console: https://support.xbox.com/en-US/xbox-one/controllers/connect-adaptive-controller-to-xbox-one
5. Default GameStik functions used with the Adaptive Controller are listed in Table 2 on the next page.

Functions (Xbox Adaptive Controller):

The following functions are the default options for the specified actions which can be modified using profile settings. [2]

Action	Function (Left USB)	Function (Right USB)	Time (Seconds)
Joystick (Right)	Move Right on X-axis	Move Right on X-axis	N/A
Joystick (Down)	Move Down on Y-axis	Move Down on Y-axis	N/A
Joystick (Left)	Move Left on X-axis	Move Left on X-axis	N/A
Joystick (Up)	Move Up on Y-axis	Move Up on Y-axis	N/A
Puff	A	X	1
Sip	B	Y	1
Puff	LB	RB	2
Sip	**X1[2]**	**View[1]**	2
Puff	View	X1	3
Sip	Menu	X2	3

Table 2: Xbox Adaptive Controller Functions

The Xbox Adaptive Controller comes with the option to configure and map buttons using three different mapping profiles. The profiles can be switched using the ***Profile*** button on the Xbox Adaptive Controller. The profiles can be edited based on the needs of the user. [3] The ***Shift*** button action can be used to switch between buttons when the ***Shift*** functionality is configured in the ***Profile*** settings. [4]

Note 2: The LED on the GameStik will blink once in green when the X1 button action or 2-second long sip is performed. The X1 button action or 2-second long sip is reserved to be used as Shift button which is used to switch between primary and shift button actions.

Please follow the instructions below to map the buttons through the ***Profile*** settings:

1. Press the ***Xbox*** button to open the guide.
2. Select ***Home > Settings > Kinect and Devices*** and choose ***Devices & Accessories***.
3. Press the ***A*** button or short puff (1 second).
4. Select ***Xbox Adaptive Controller***.
5. Select ***Configure*** option and then press the ***A*** button or short puff (1 second) to enter.

6. Select ***New profile*** and then press the ***A*** button or short puff (1 second) to enter.
7. Enter the name for the new profile. ***GameStik1*** can be used as an example.
8. Select the button that you would like to map under ***Mapping*** menu and then press the ***A*** button or short puff (1 second) to enter.
9. Assign the ***Primary*** and ***Shift*** button actions for selected button.
10. Press the ***B*** button or short sip when you are finished.
11. The following three examples can be used to map the main buttons:

- ***A*** button or short puff
    1. Select the ***A*** button under ***Mapping*** menu and then press the ***A*** button or short puff to enter. We select the ***A*** button which is activated by short puff as the first example when ***GameStik*** is connected to the left USB 2.0 port.
    2. Assign the ***Primary*** and the ***Shift*** button actions for selected ***A*** button.
    3. The ***Primary*** button action is assigned to the ***A*** button and the ***Shift*** button action is assigned to the ***X*** button for the ***A*** button in the ***GameStik1*** profile example.
    4. Press the ***B*** button or short sip when you are finished.
- ***B*** button or short sip
    1. Select the ***B*** button under ***Mapping*** menu and then press the ***A*** button or short puff to enter. We select the ***B*** button which is activated by short sip as the second example when ***GameStik*** is connected to the left USB 2.0 port.
    2. Assign the ***Primary*** and the ***Shift*** button actions for selected ***B*** button.
    3. The ***Primary*** button action is assigned to the ***B*** button and the ***Shift*** button action is assigned to the ***Y*** button for the ***B*** button in the ***GameStik1*** profile example.
    4. Press the ***B*** button or short sip when you are finished.
- ***LB*** button or 3 seconds long puff
    1. Select the ***LB*** button under ***Mapping*** menu and then press the ***A*** button or short puff to enter. We select the ***LB*** button which is activated by 2-second long puff as the third example when ***GameStik*** is connected to the left USB 2.0 port.
    1. Assign the ***Primary*** and the ***Shift*** button actions for selected ***LB*** button.
    2. The ***Primary*** button action is assigned to the ***LB*** button and the ***Shift*** button action is assigned to the ***RB*** button for the ***LB*** button in the ***GameStik1*** profile example.
    3. Press the ***B*** button or short sip when you are finished.

12. Select the button that you would like to map to the ***Shift*** button action under the ***Mapping*** menu and then press the ***A*** button or short puff to enter. We select the ***X1*** button which is activated by 2-second long sip as an example when ***GameStik*** is connected to the left USB 2.0 port.
13. Select the ***Use as Shift*** button check box and then press the ***A*** button or short puff to enter.
14. Press the ***B*** button or short sip when you are finished.
15. Press the ***B*** button or short sip again to enter the ***Profiles*** page again.
16. Select the new created profile which is ***GameStik1*** as an example and then press the ***A*** button or short puff to enter.
17. Next save the new profile by selecting the ***No Slot*** dropdown menu and then pressing the ***A*** button or short puff to enter.
18. Select one of the three available slots and then press the ***A*** button or short puff to save the profile.
19. ***GameStik1*** profile is now ready to use. Press the Profile button on the Xbox Adaptive Controller to switch between profiles and select ***GameStik1*** profile.

The Table below represents the mapped functions for ***GameStik1*** profile example.

Action	Primary	Shift	Time (Seconds)
Joystick (Right)	Move Right on X-axis	Move Right on X-axis	N/A
Joystick (Down)	Move Down on Y-axis	Move Down on Y-axis	N/A
Joystick (Left)	Move Left on X-axis	Move Left on X-axis	N/A
Joystick (Up)	Move Up on Y-axis	Move Up on Y-axis	N/A
Puff	A	X	1
Sip	B	Y	1
Puff	LB	RB	2
Sip	**X1 (Shift Button)**	**X1 (Shift Button)**	2
Puff	View	View	3
Sip	Menu	Menu	3

Table 3: GameStik1 profile Functions

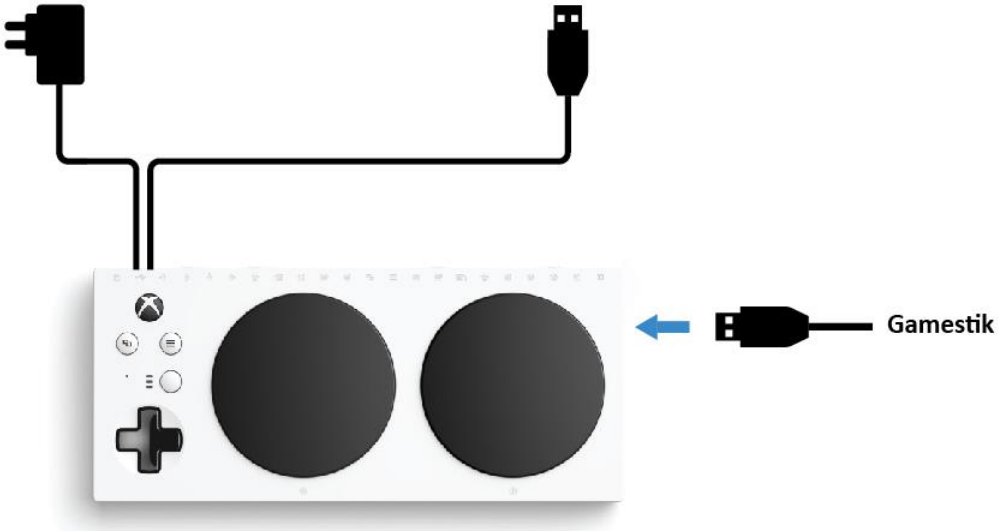
Powering the Controller

The Adaptive Controller has an internal rechargeable battery that allows users to use it wirelessly (https://support.xbox.com/en-US/xbox-one/controllers/charge-adaptive-controller). Using the GameStik (and any external accessibility switch) will draw additional power.

To prevent fast power consumption, we recommend the Adaptive Controller be plugged into to an electrical outlet using an AC Adapter (Option 1) or a power bank of at least 5000mAH (Option 2) while gaming.

Option 1

Option 2



Cleaning the GameStik

The mouthpiece and filter are medical grade products used for capturing saliva. Each user should have their own set of mouthpiece and filter for hygienic reasons. It has a life cycle of 3-6 months depending on how often it's used and how much saliva is trapped by the filter.

Unused pieces should be kept in a clean sealed bag away from the sun and used ones should be disposed of after each cycle.

The GamesStik casing is 3D printed layer by layer in plastic. Due to this, tiny gaps are formed between each layer, making the casing porous and not resistant to water.

Do:

- Wipe with a non-abrasive cloth lightly dampened with water
- Benzalkonium chloride antiseptic wipes can be used on mouthpiece
- Mouthpiece can be rinsed in cold water and air dried in its 3-6 month life cycle

Don't:

- Avoid using abrasive cleaning materials
- Alcohol will destroy the plastic material
- Do not use any cleaning agents or soap
- Do not wash the filter

References

1. ArduinoJoystickLibrary Github repository
2. What external devices work with the Xbox Adaptive Controller?
3. Customize the Xbox Adaptive Controller in the Xbox Accessories app
4. How do I use Shift with the Xbox Adaptive Controller?