

Gamepad API

Cpt S 489

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Gamepad API

- Gamepad API provides access to game controllers
 - At the time of this writing, PS4 and Xbox One controllers are both supported on Windows (need appropriate drivers)
 - PS4 controller seems to work wirelessly on both Mac OS and Windows
 - Any USB or wireless controller that works with other software (e.g. games) on your machine will likely be supported
- (WD) Working Draft status
 - As of April 2017 it still has some quirks (discussed later), but is supported by major browsers

Starting Point

- [navigator.getGamepads\(\)](#)
 - Returns array of Gamepad objects
- Quirk #1: Do NOT rely on the length of returned array - may contain several null entries
- If looking to support a single controller/gamepad, check to see if the entry at index 0 is null
 - If so -> no gamepad
 - If not null -> you have access to a gamepad

Starting Point

- Quirk #2: After machine registers Bluetooth controller, may need to hit a button on the controller before it becomes accessible in the JavaScript Gamepad API
 - Just something that was noticed when using the API
- Can listen for gamepadconnected and gamepaddisconnected events
 - As of April 2017
 - Quirk #2 may still apply even when listening for these events
 - The MDN link for gamepaddisconnected is dead (even though that URL is directly copied from their gamepad API documentation page)

Gamepad Object

- buttons property that is an array of GamepadButton objects
- axes property that is an array of numerical values
 - Often 2 sequential numerical values, each in the range $[-1,1]$, correspond to one analog stick on the controller
 - Provides a vector for the direction that the analog stick is pointed in
 - Quirk #3: several controllers/gamepads may have a value CLOSE to, but not equal to (0,0) when idle

GamepadButton Object

- value property
 - numerical value in the range [0,1]
 - 0 means button is not pressed
 - 1 means button is pressed
 - Values in between 0 and 1 are supported for buttons that can be partially pressed. Rear triggers on Xbox One and PS4 controllers are examples.
 - Quirk #4: As of April 2017 certain browsers seem to make the trigger values always either 0 or 1, while other browsers support values between 0 and 1
- pressed property
 - Boolean for whether or not button is pressed

Quirk #5

- `navigator.getGamepads()` behaves differently on different browsers (as of April 2017)
 - “As of April 2017” is repeatedly mentioned to note that these things may be resolved in the future as the standards change
- On some browsers it returns a live object, meaning you can store a reference to the object and check button states whenever.
- Other browsers return a snapshot for that moment in time, meaning that it's an immutable object for the controller/gamepad state at that moment.

Quirk #5

- Assuming the “snapshot” behavior will allow you to write code that works across browsers
- Every time you want to query the controller/gamepad state, call `navigator.getGamepads()`.
 - Don't keep a reference to any gamepads in that array
 - Access them at that exact moment, then discard the reference
 - Next time you want to query the controller/gamepad, call `navigator.getGamepads()` again