

# Lesson 17 Remote Control - Introduction to WEBUI (Recommended)

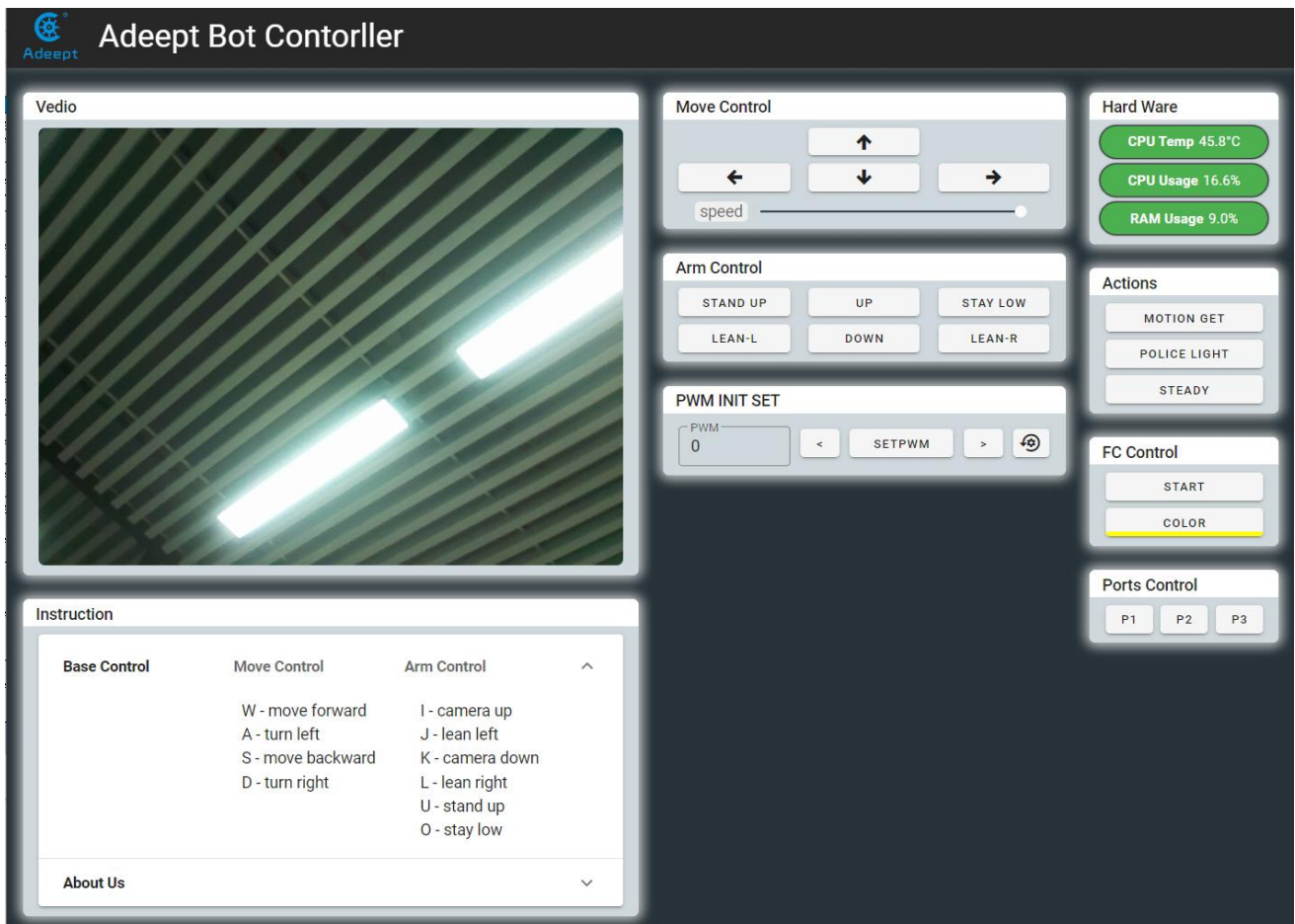
## 17.1 Overview

In this lesson, we will explore the Web - based User Interface (WEBUI) for remote - controlling a robot. This WEBUI provides a convenient and intuitive way to interact with the robot, enabling users to control various aspects such as movement, arm operations, and sensor - based functions.

## 17.2 Getting Access to Web Controller

- A web controller is a web interface to control the robot product to perform various actions and it can be applied on any device that is able to run a browser, including PC, mobile phones, tablets, etc.
- If you've completed all installations based on the instructional document, it will be quite easy to open a web controller.
  1. Check that your device is under the same LAN with the Raspberry Pi.
  2. Obtain the Raspberry Pi's IP address.
  3. Open a web browser (recommended to use Chrome in case of any possible incompatibility with other browsers), enter the Raspberry Pi's IP address with the port :5000, for instance:  
**192.168.3.31:5000**

Then the web controller will be loaded into the browser.

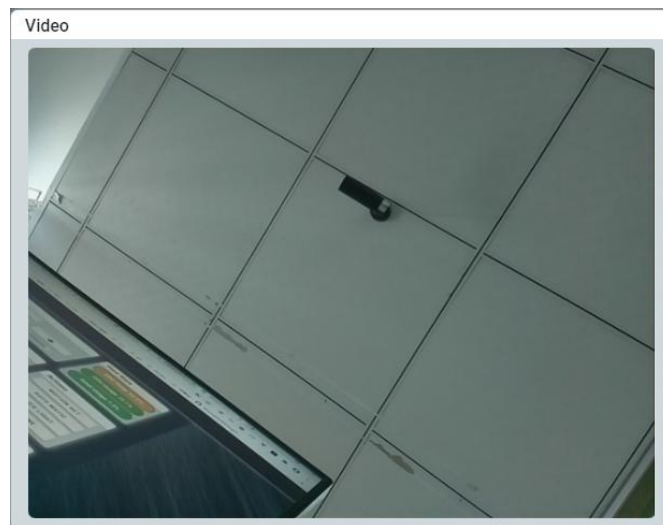


**Modules on the web controller may vary from products.** Most of them are explained below with the method for application. You can check modules on your web controller accordingly to better understand their functions and how to use them.

## 17.3 Principle Introduction

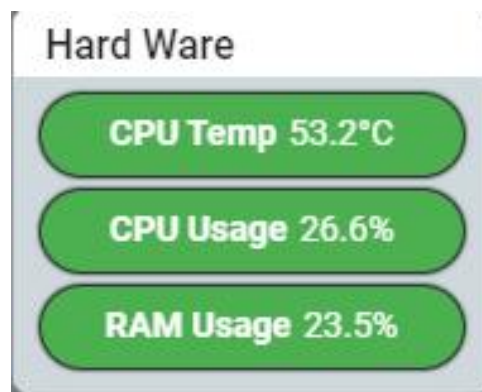
### 1. Video Module

Display the image captured by the camera.



## 2. Hard Ware Module

Display the CPU temperature, as well as the usage of CPU and RAM in real time.



## 3. Move Control Module

Control the movement of the robot towards the front, back, left, and right.

Speed: Slide to adjust the speed of the robot's movement, for robot with wheels. It's not supported for the Adept DarkPaw Robot.



## 4. Camera Control Module

Control the camera's movements.



## 5. Actions Module

Switches for certain functions, such as motion detection and warning lights.



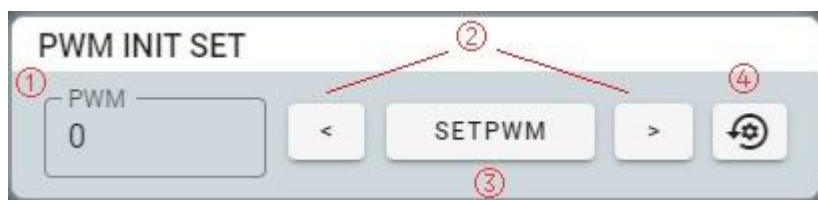
## 6. FC Control Module

Control the color detection function on/off and color setup.



## 7. PWM INIT SET Module

Adjust the angle of the servo motor.



## 8. Ports Control Module

Control the on/off of three LED lights.



The operation instructions are as follows:

	Button	Instruction	Describe
Move Control	UP/The <b>W</b> key on the keyboard	forward/DS	move forward
	DOWN/The <b>S</b> key on the keyboard	backward/DS	move backward
	LEFT/The <b>A</b> key on the keyboard	left/TS	turn left
	RIGHT/The <b>D</b> key on the keyboard	right/TS	turn right
Arm Control	STAND UP/The <b>U</b> key on the keyboard	StandUp	Stand up – whole robot body rises.
	UP/The <b>I</b> key on the keyboard	up	Camera view moves upwards, by lifting the forelegs and lowering the hind legs.
	STAY LOW/The <b>O</b> key on the keyboard	StayLow	Lie down – whole robot body gets low.
	LEAN-L/The <b>J</b> key on the keyboard	Lean_L	Robot tilts towards the left.
	DOWN/The <b>K</b> key on the keyboard	down	Camera view moves downwards, by lifting the hind legs and lowering the

			forelegs.
	LEAN-R/The <b>L</b> key on the keyboard	Lean_R	Robot tilts towards the right.
PWM INIT SET	NUM		Servo connection channel number
	<	SiLeft X	Click the button to control the x-channel servo to rotate clockwise.
	>	SiRight X	Click the button to control the x-channel servo to rotate counterclockwise
	SETPWM	PWMMS X	Click the button to control the x-channel servo to 90 degrees
Hard Ware	CPU Temp		Shows the temperature of the Raspberry Pi CPU
	CPU Usage		Shows the usage of the Raspberry Pi CPU
	RAM Usage		Shows the usage of the Raspberry Pi memory
	MOTION GET	motionGet/stopCV	Switch to monitor mode, the robot stops moving and reacts to the moving objects detected by the camera, which

Actions			are framed in the video module.
	POLICE LIGHT	police/policeOff	Make the WS2812 LED lights on the robot flash alternately in red and blue.
	STEADY	steadyCamera/steadyCameraOff	Control the camera to remain level
FC Contorl	START	findColor/stopCV	Turn on/off the color detection function.
	COLOR	{'title': 'findColorSet', 'data': [r,g,b]}	Select the color to be detected
Ports Control	P1	Switch_1_on/Switch_2_off	Control the LED1 light to turn on and off
	P2	Switch_2_on/Switch_2_off	Control the LED2 light to turn on and off
	P3	Switch_3_on/Switch_3_off	Control the LED3 light to turn on and off