

# Quadruped Auton ESP32 – Button Functions

## Tech:

- ESP32 32-bit 85 MHz RISC microcontroller
- ESP-NOW 2.4GHz Wi-Fi control
- 9 x Servo motors, 1 head, 2 per leg
- VL53L0X TOF laser range finder, range 2m
- WS2812B RGB LEDs
- 2 x 3.7v 3000mAh batteries
- 3-D printed construction

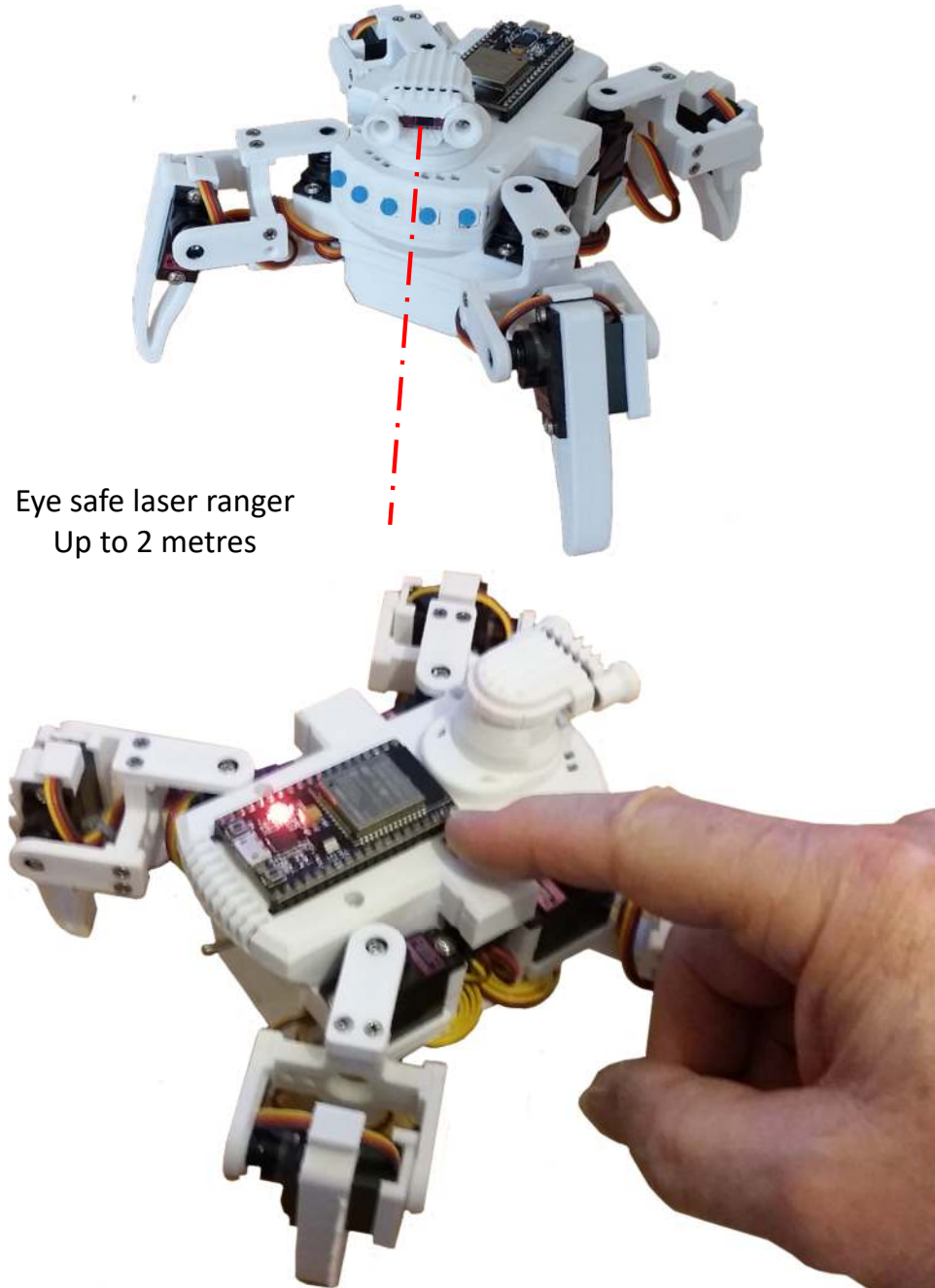
## Button Features:

- Safe start, with LED power indicators
- Short press - fixed head mode
- Long press - moving head mode
- 1 - LEDs display laser ranging (& tracking)
- 2 - backs away from approaching objects
  - returns to start after 5 seconds in fixed mode
  - turns in moving head mode
- 3 - target tracking at a fixed distance
  - turns in moving head mode
- 4 - autonomous scan & move behaviour (fixed head)
- 4 - autonomous move whilst scanning (moving head)
  - LEDs display laser range & track movements
- Long press to enter power down
- Battery Low sensing with s/w cut-off

## Enhancements:

- Wii Nunchuk control over Wi-Fi

Eye safe laser ranger  
Up to 2 metres



# Quadruped Auton ESP32 – Nunchuk Functions



## Nunchuk Features:

- Hold 'C' to initial Wi-Fi mode
- Hold 'C + Z' to end Wi-Fi mode & power down
- Walk using joystick 'J'
  - Forwards & backwards + steering
  - Neutral turns left/right
- Holding in button 'Z' walks sideways + steering
- Hold in 'Z' + briefly press joystick forward, robot bows
- Hold in 'Z' + briefly press joystick backward, robot waves
- Briefly pressing 'C' increases speed 1 – 5
- Briefly pressing 'Z' decrease speed 5 - 1

## Extras:

- Battery health, RGB LED indication when idle.
- RGB LEDs are animated to match movement.
- Wi-Fi controller displays:
  - Battery health status
  - Wi-Fi link connection
  - Wii Nunchuk controller registers
  - Joystick values and offsets
- Works with Windows 'Mirror' app, to display information like battery voltage, laser range, modes, etc OTA.