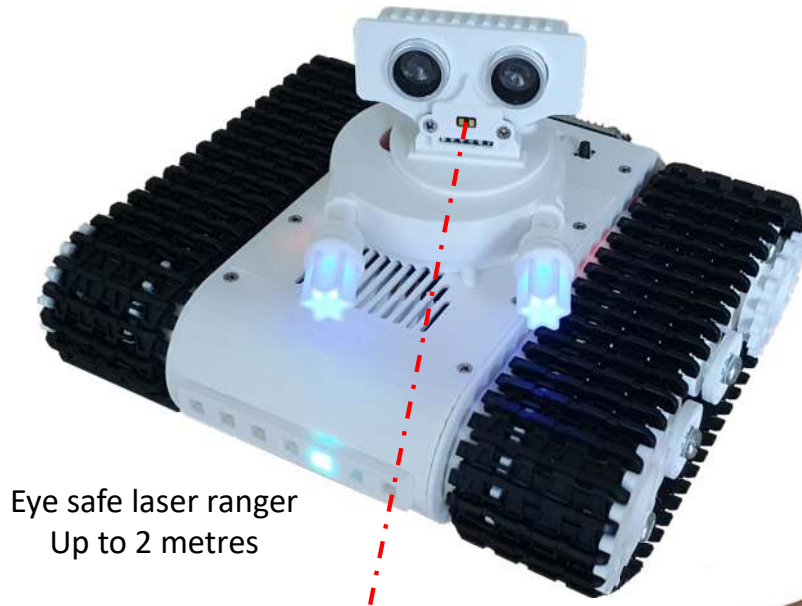
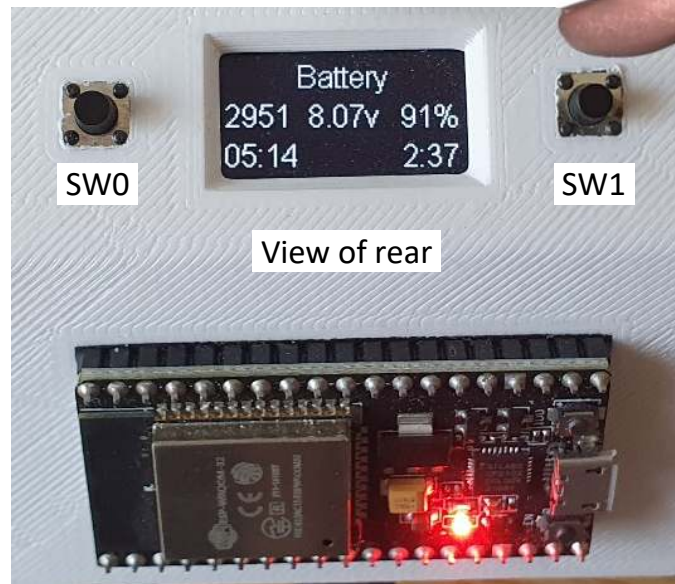


TankBot ESP32 – Button Functions



Eye safe laser ranger
Up to 2 metres



View of rear

Tech:

- ESP32 microcontroller
- 2 x Servo motors + 4 x DC drive motors
- VL53L01X TOF laser range finder
- RCWL-1601 acoustic range finder
- 64 x 128 OLED display
- 9 x WS2812B RGB LEDs
- 3W Audio amplifier & speaker
- 2 x 3.7v 3000mAh batteries
- 2.4GHz wireless control
- 3-D printed construction

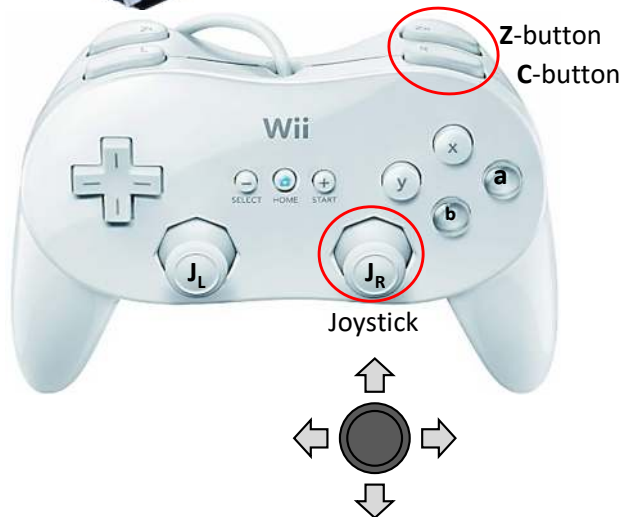
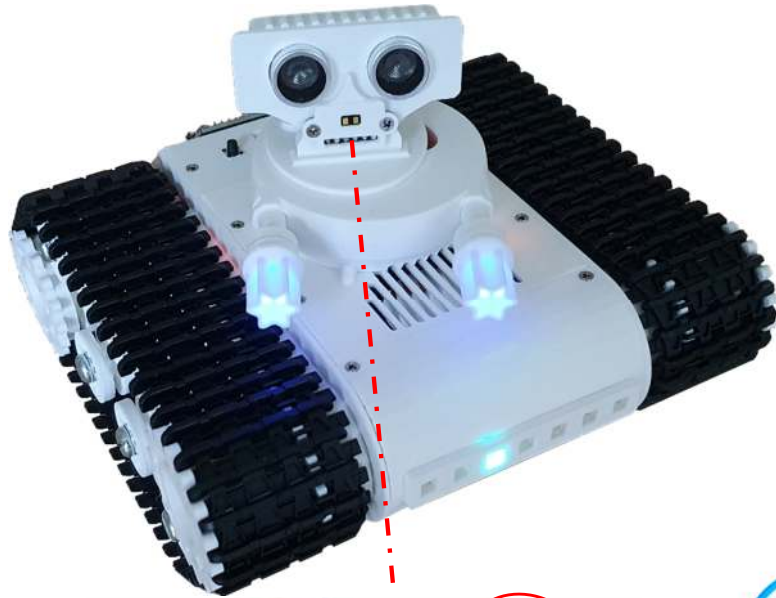
Features:

- Safe start. Voice message: "Hello!.. sergeant TankBot.."
- SW0 – hold down to wake up TankBot.
- SW0 – toggles display options.
- SW1 – acts as a 'select' button.
- Either buttons, stop audio playing.
- SW0 – long press offers 'sleep' option.
- SW0 – very long press forces soft 'RESET' action.

Modes:

- Sleep – default do nothing state.
- Sonar F (fixed head), or Sonar A (auto-sweep).
- LTOF-F (fixed head), or LTOF-A (auto-sweep).
- Audio - enables selection of music files.
- Drive – enables dancing demo.

HexBot 2 – RC Demo Functions



Note that a Wii Classic Pro controller can be plugged into the Wi-Fi transceiver and used to control this robot. The right-hand joystick and front buttons, represent Nunchuk features. The rest control a wide range of features.



Wii Classic Pro functions:

TankBot system default is Wi-Fi RC disconnected.
Nunchuk commonality in right-hand controls:

- **C** – held in, connects over ESP-NOW Wi-Fi.
- **C + Z** – held in, will disconnect RC over Wi-Fi.

When connected over Wi-Fi:

- **C** – increased Gear value.
- **Z** – decreased Gear value.
- **a** – sets audio volume HIGH.
- **b** – sets audio volume LOW
- **J_R** – controls motor drive system.
- **J_L** – controls turret weapon system.

More functions are covered on the next slide.

A Wi-Fi connection also support the use of the Monitor+ app, which mirrors the OLED display onto your PC screen, and provide additional screen features.

Button	Conditions and responses
C	Held initially for > 1 second 'connects' the robot over Wi-Fi
C + Z	Held for > 2 seconds will deactivate the Wi-Fi connection.
C	Each press will increase the drive responsiveness 1 – 5(max).
Z	Each press will decrease the drive responsiveness 5 – 1(min).

TankBot – Wii Classic Pro Functions



I2C register 6 byte map:

Bit								
7	6	5	4	3	2	1	0	
RX<4:3>				LX<5:0>				RxWiFi[0]
RX<2:1>				LY<5:0>				RxWiFi[1]
RX<0>	LT<4:3>				RY<4:0>			RxWiFi[2]
LT<2:0>				RT<4:0>				RxWiFi[3]
BDR	BDD	BLT	B-	BH	B+	BRT	1	RxWiFi[4]
BZL	BB	BY	BA	BX	BZR	BDL	BDU	RxWiFi[5]

LX,LY are the left Analog Stick X and Y (0-63), RX and RY are the right Analog Stick X and Y (0-31), and LT and RT are the Left and Right Triggers (0-31). The left Analog Stick has twice the precision of the right Stick.

BD{L,R,U,D} are the D-Pad direction buttons. B{ZR,ZL,A,B,X,Y,+,H,-} are the discrete buttons. BL{LT,RT} are the digital button click of LT and RT. All buttons are 0 when pressed.

Wii Classic Pro functions:

TankBot system default is Wi-Fi RC drive disconnected, but the Wii controller still communicates with TankBot.

- **R** – held in, connects TankBot drive via ESP-NOW Wi-Fi.
- **R + Z_R** – held in, will disconnect drive over Wi-Fi.

When Wii controller drive is connected:

- **R** – increases Gear value, 1 - 5.
- **Z_R** – decreased Gear value, 5 - 1.
- **a** – removes audio attenuator, sound is louder.
- **b** – enables audio attenuator, sound is quieter.
- **y** – toggles, LED animations.

else Wii controller drive is not connected:

- **x** - held > 2 seconds enables/disables auto drive.
- **y** – toggles, LED animations.

Digital keypad:

- **^** - plays/restarts jukebox audio.
- **v** – stops playing jukebox audio.
- **>** - plays next audio file in sequence.
- **<** - plays previous audio file in sequence.

Jukebox selects:

- **-** – 0 selects jukebox 0 file list, talk phrases.
- **H** – 1 selects jukebox 1 file list, film trailer music.
- **+** – 2 selects jukebox 2 file list, music variety.