

Demo – Features



Control buttons



Turn



Speed

Tech:

- Arduino NANO microcontroller 16MHz 8-bit RISC
- 3 x Infrared proximity sensors + LEDs
- 2 x FS90R continuous rotation servo motors
- 60mm drive wheels
- 3-D printed construction
- Push button (Turn/Speed) options + control

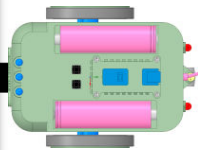
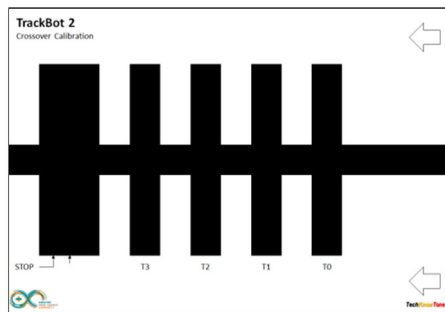
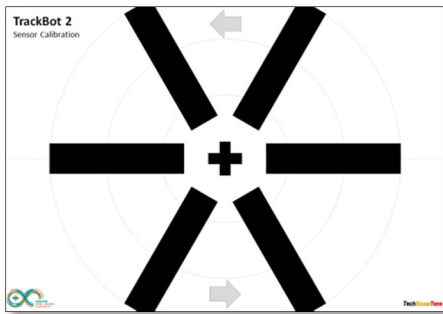
Features:

- IR analogue sensors scanned at 250 Hz
- Sensors activated individually avoids crosstalk
- Automated calibration processes
- Line tracking with selectable speed & turn
- Two button option control system
- 7 x speeds + 7 x turn options
- LEDs indicate option settings
- Brake lights when turning and stopping
- Battery voltage monitoring, with shut-down

Enhancements:

- None.

Demo – Options



Turn setting – press 1 to 7 times to select turn strength. LEDs flash immediately afterwards to indicate entered turn setting.



Speed setting – press 1 to 7 times to select speed. LEDs flash immediately afterwards to indicate the entered speed setting.



START– press and hold both buttons, wait until LEDs flash, then release. This will start line tracking mode after a short delay.



Sensors manual calibration – press and hold, wait for all 3 LEDs to blink, then release. Robot enters manual line detection mode. Move it side to side crossing a line to calibrate the sensors until the LEDs all flash to indicate end of calibration mode.



Sensors auto-calibration – place robot on sensor calibration sheet, left-hand wheel centred. Press and hold turn button, wait for all 3 LEDs to blink, then continue to hold down, all 3 LEDs will blink again, then start flashing. Robot enters automated line detection mode, rotating around its left wheel. This will stop once sensor calibration has been achieved.



Speed auto-calibration – place robot on the sensor calibration sheet, left-hand wheel centred. Press and hold right-hand speed button, wait for all 3 LEDs to blink, then release button switch. Robot enters into automated speed calibration, turning in an anti-clockwise direction, calibrating the right-hand motor. After several rotations it will stop and flash its right-hand LED. Now place the right-hand wheel centred. Press the right-hand button and the robot will perform several clockwise rotations, to calibrate the left-hand motor.



Crossover auto-calibration – place robot on a line leading to the crossover calibration sheet. Press and hold right-hand speed button, wait for all 3 LEDs to blink, continue to hold, LEDs will blink again, then release button switch. Robot enters into automated crossover calibration for the current speed. It will stop when it reaches the thick track at the end of the run. This must be repeated for all 7 speeds.