



Otto DIY SMARS Rover



Otto DIY

[VIEW IN BROWSER](#)

updated 18. 10. 2023 | published 18. 10. 2023

Summary

Otto needed some new faster way of getting around and borrowed some tracks from SMARS.. made by @s4snow

[Hobby & Makers](#) > [RC & Robotics](#)

Tags: [space](#) [robot](#) [arduino](#) [moon](#) [tank](#) [mars](#)
[arduinouno](#) [smars](#) [ottodiy](#)

I took the SMARS tracks and wheels, added them to Otto DIY robot

How it works

Otto DIY needed some new faster way of getting around and borrowed some tracks from SMARS opensource project.

He now prefers these to walking..

Part List

- 1 x MAX7219 LED Matrix
- 2 x GA12-N20 6volt DC 150rpm Miniature motors
- 1 x HCSR04 Ultrasonic range-finder module
- 1 x Noise sensor module (analog output)
- 1 x BUNDLE of Female to Female jumper wires

- 1 x Active Buzzer (not passive)
- 1 x HC-06 Bluetooth module
- 1 x POWER SOURCE: which ever you prefer, a standard 9volt battery into the Arduino VIN pin will work, or a LIPO battery and a suitable DC-DC converter into the +5v pin, the choice is yours.
- 1 x DC motor driver (two motor output) : your choice !
- 1 x ARDUINO : your choice, either NANO or UNO !

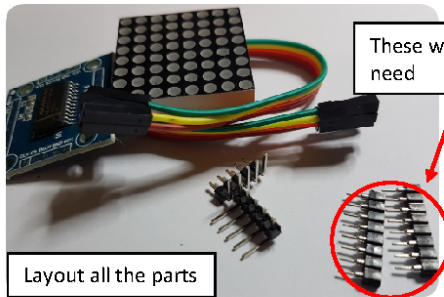
3D Printing

- Recommended using an FDM 3D printer with PLA material. Settings to Print your Otto Quad,
- 20% infill
- 0.15 mm resolution
- supports for the feet Only as they need to be printed as they are provided
- I use a RAFT to help stick to the bed, this is optional.
- Larger items I printed with a rim
- There should be no need to rotate any parts, print as they are shown.

This is an advanced project so for coding and try the other examples you will need Arduino IDE (version 1.8.5 preferably to avoid future errors)

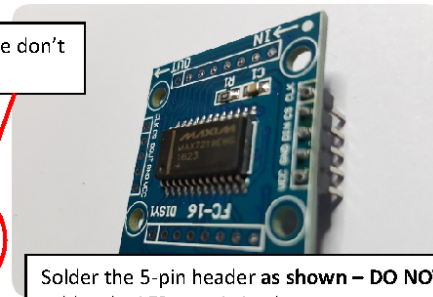
Assembly Instructions



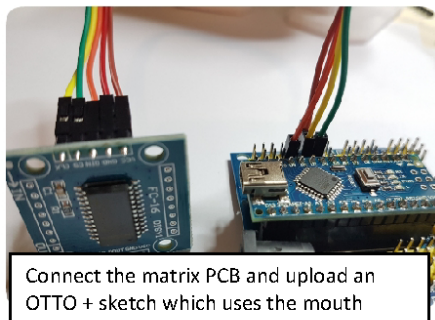


These we don't need

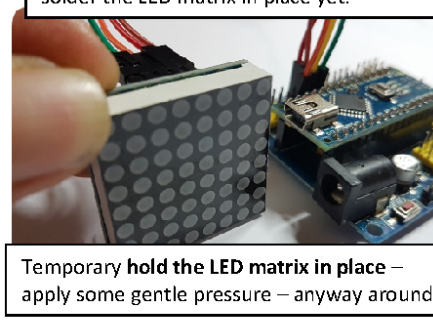
Layout all the parts



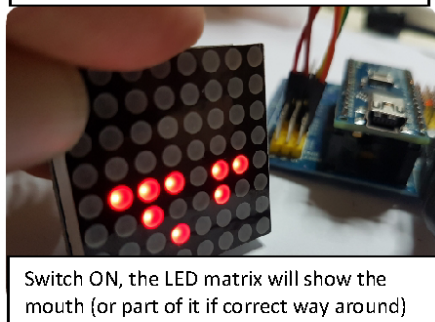
Solder the 5-pin header as shown – **DO NOT** solder the LED matrix in place yet.



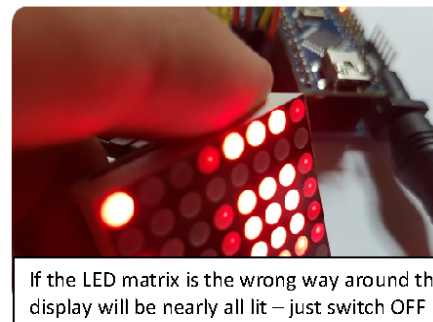
Connect the matrix PCB and upload an OTTO + sketch which uses the mouth



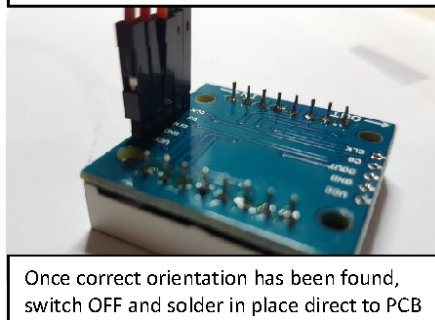
Temporary **hold the LED matrix in place** – apply some gentle pressure – anyway around



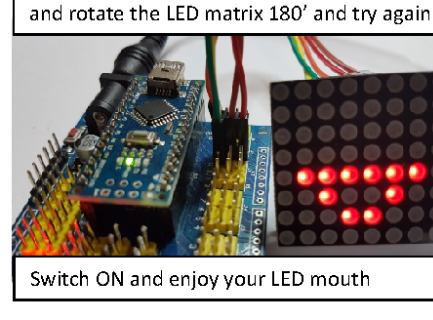
Switch **ON**, the LED matrix will show the mouth (or part of it if correct way around)



If the LED matrix is the wrong way around the display will be nearly all lit – just switch **OFF** and rotate the LED matrix 180° and try again



Once correct orientation has been found, switch **OFF** and solder in place direct to PCB



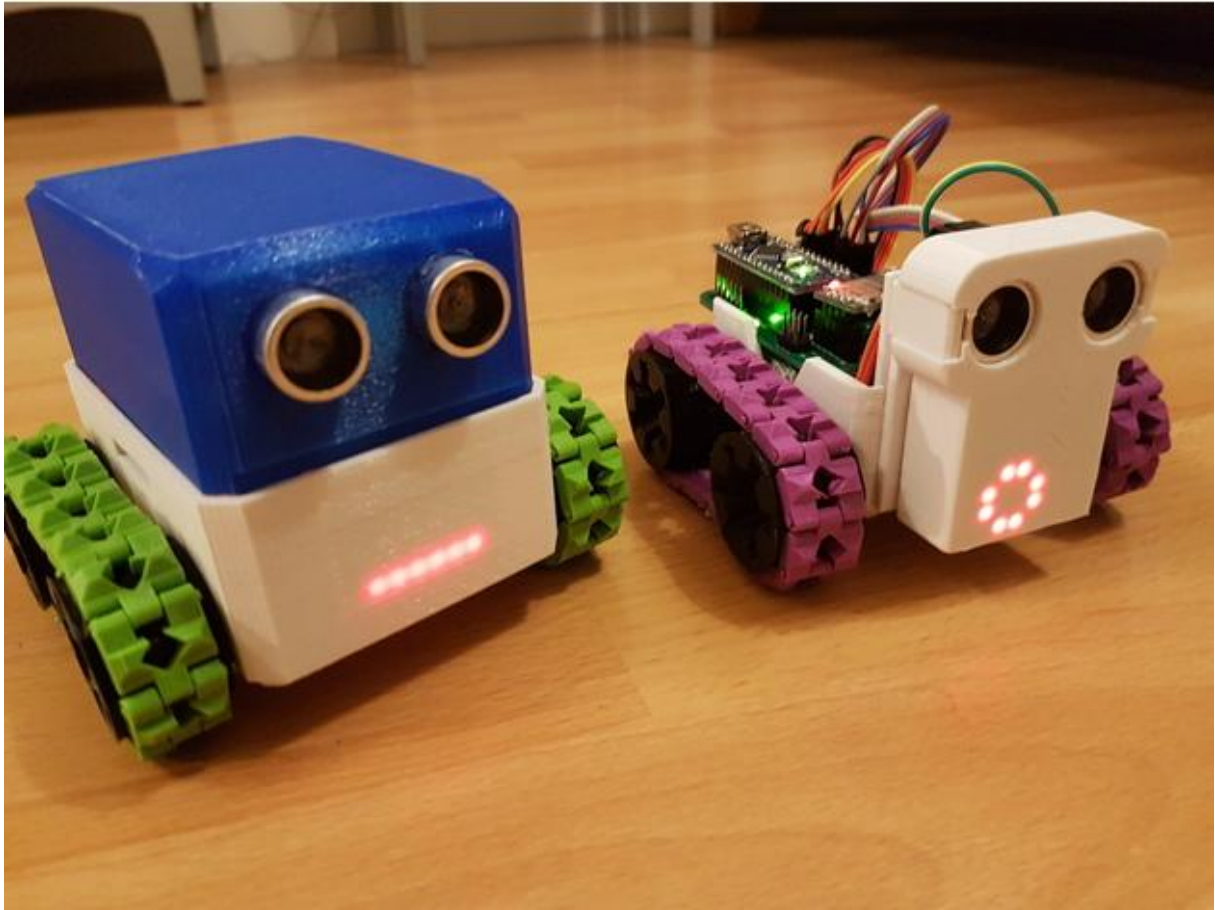
Switch **ON** and enjoy your LED mouth



Otto has an Android APP for Bluetooth control, all information and code can be found in the software folder.

I used a 2mm drill bit to enlarge one side of the Track segment as it was a little too tight and would not move freely.

For the pin between tracks use the same 1.75mm filament to join them



You can alternative use an Arduino UNO board.

We invested lots of time and resources to provide open source code, software and hardware, please support this project by just **giving us a ♥ Like and share** and you are **welcome to be a part of this friendly community** of robot builders, teachers and makers. **Join today our Otto Builder community**

This remix is based on



Otto DIY Wheels robot

by Otto DIY

Model files



3D Printed Files

11 files



ottodiyр_master_wheel.stl



ottodiyр_slave_wheel.stl



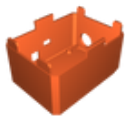
mechanical_track.stl



bracket_ultra.stl



motor_cover_2.stl



ottodiyр_head_nanoshield.stl



ottodiyр_head_custompcb1.stl



unohead_v6.stl



matrix_ultra.stl



ottodiyr_base.stl



ottodiyr_trailer.stl

Other files

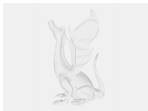


Software

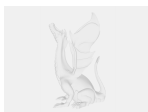
2 files



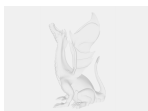
ottodiyrover.ino



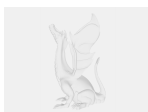
ottodiy_smars_I9110.ino



ottodiyr_assembly.pdf



arduinouno_connections.pdf



arduinonano_connections.pdf



ottodiy_smars_assembly.pdf

[Find source .stl files on Thingiverse.com](#)

License

This work is licensed under a
Creative Commons (4.0 International License)



Attribution-ShareAlike

-
- ✗ | Sharing without ATTRIBUTION
 - ✓ | Remix Culture allowed
 - ✓ | Commercial Use
 - ✓ | Free Cultural Works
 - ✓ | Meets Open Definition