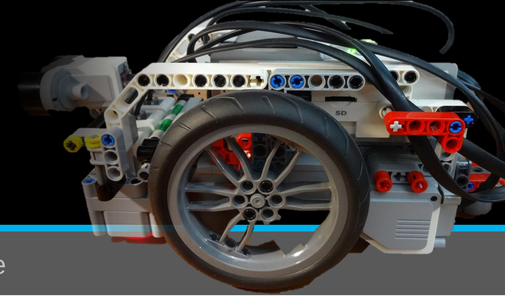
EV3 Line Follower Robot, "*Samianator*"



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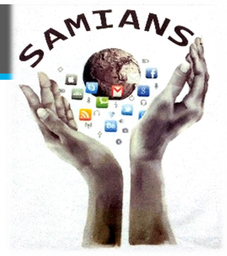
Purpose

Our LEGO EV3 Line Follower Robot follows the black line that has several curved turns and may split and re-join. The robot can also cope with track obstacles like objects laid on the track or line cut-offs.

from: Samos Island, Greece

- ***Samos*** *the island of legend and beauty, in the Eastern Aegean sea on the East of Greece.*
- *It is well-known because of its sweet Muscat wine, the beautiful attractions and the rich history.*
- *Home of* ***Pythagoras,*** *the great mathematician and philosopher, and*
- ***Aristarchus****, the astronomer. The first person to propose the heliocentric theory.*
- *Archaeological developments like the Temple of goddess* ***Hera*** *and*
- ***Eupalinos tunnel****, the masterpiece of engineering.*

about: The Team



Our team Samians, has students aged 14 to 15 from the **Junior High School of Samos, Greece**. On our way to create the Line Follower Robot, we were helped by students who worked voluntarily on their free time.

This year, 2016-2017, our School has 185 students.

Its infrastructure includes a Computer Science Lab and a courtyard which has a handball court and also 2 basketball courts.

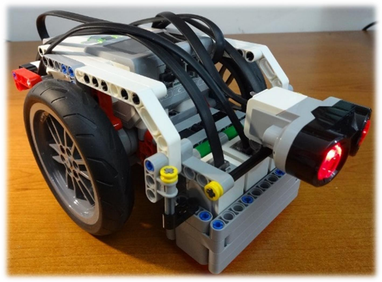
WEB http://2gym-samou.sam.sch.gr

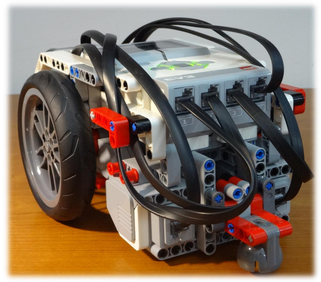
Email 2gymsamo@sch.gr

Materials

Key Materials		Quantity
	EV3 Intelligent Brick	1
	EV3 Colour Sensor	3
	EV3 Ultrasonic Sensor	1
	EV3 Large Servo Motor	2
	Tires from Lego Technic (42036) Motorcycle kit	2

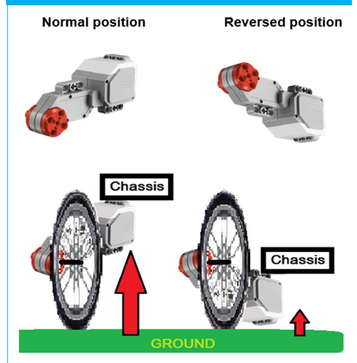
The Robot





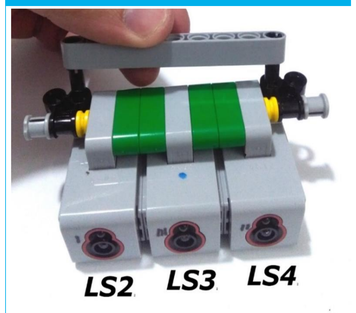
Design

Motors



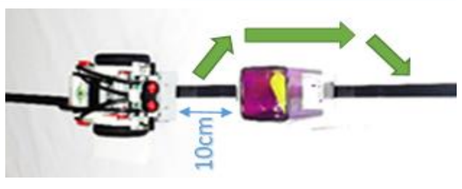
Reversed motor position for lower center of gravity

Sensors



3 Light Sensors for better line following

1 Ultrasonic Sensor for Obstacle Avoidance



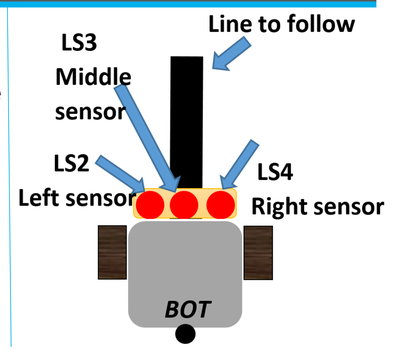
Line Follow Principle

- Line Follow is based in comparing the 3 measured reflected light intensities from the Colour Sensors.
- Light Error Calculation Formula

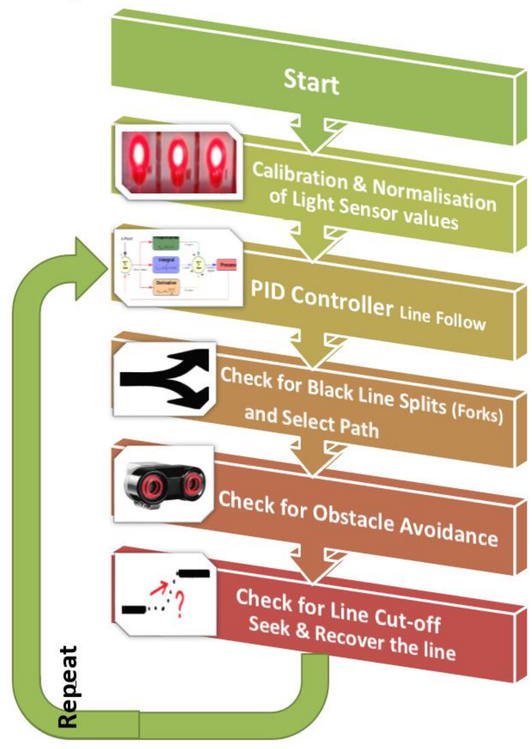
Error = (LS2 – LS3) + (LS3 – LS4)

- Always tries to position the line in the middle sensor,

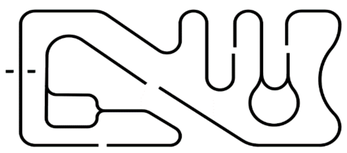
ie **Error = 0**



Program Flow Diagram



Testing to some Tracks…



Robot Samianator in action!

https://youtu.be/NJspfrxu12E