

Week 3-Lesson plan

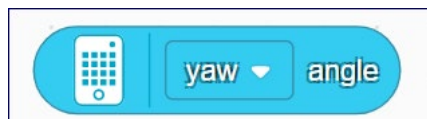
Challenge 1: Write a program to make driving base start from a point and reach the End point

Building Instructions:

A Simple Driving Base

- i) The robot should moves forward 50cm.
- ii) The robot moves forward 50cm and backwards 50cm
- iii) The robot moves forward 50cm and turns 180 degrees and return back to starting point.
- iv) The robot should start moving right and complete a square(try opposite direction as well)

- v) The robot should start moving right (using Yaw)



Yaw angle acts like a compass for the robot. It tells the robot how far it has turned. By using yaw angle, the robot can make precise turns (such as exactly 90°), even if the battery level or surface changes.

Yaw angle is a value measured by the gyro sensor inside the LEGO Spike Prime hub that shows how much the robot has turned left or right from its starting direction. Before turning, the yaw angle is reset to 0 so the robot knows its current direction. As the robot turns, the yaw angle increases or decreases. The program keeps checking this value and stops the robot when the yaw angle reaches the required angle (for example, 90°). This allows the robot to turn accurately instead of guessing based on time or motor movement.

Challenge 2: Write programs using the Colour Sensor to make the Driving Base autonomous.

Building Instructions:

A Simple Driving Base with the Colour Sensor

Using the Color Sensor

The Color Sensor can be used in 2 different modes to solve this challenge (i.e., colour mode or Reflected Light Intensity mode).

- i) The robot starts moving and stops for a colour.
- ii) The robot starts moving, stops for a colour, plays a sound, waits for a few seconds, and continues. This should be repeated three times.

iii) Extend the above and use logical OR where you select any four colours, and the robot should do exactly the same as (ii).

iv) **Don't fall** : Using a forever loop - when the robot reaches the edge of the table, it goes back a few steps, turns either left or right, and moves forward.

v) **Follow a line**: The robot searches for the black line and then follows the road