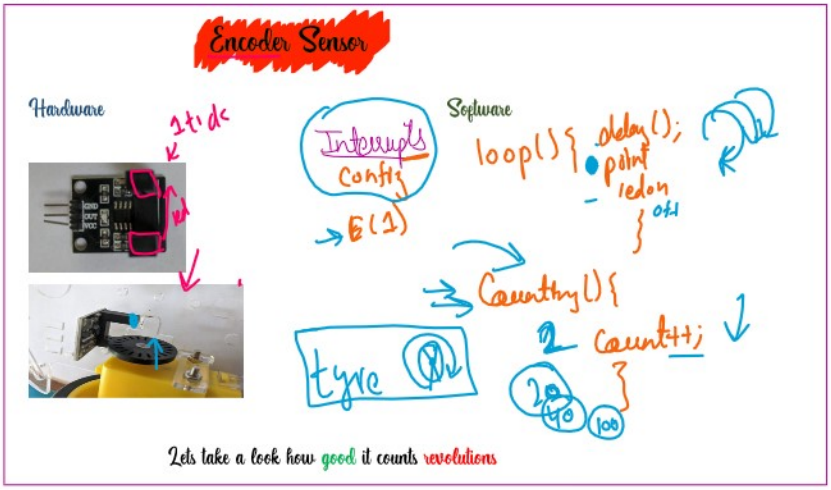
4 - Distance Tranveling and Degree Turns

Monday, June 15, 2020 9:45 AM



Distance Calculations

Basic Geometry of CIRCLE

Area $= 2\pi r$.

$= 2 \times 3.14 \times 33.05\,mm$

$A = 207.5\,mm$

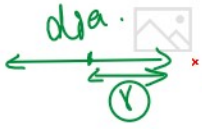
$2\pi r$

Eg 100 cm

$\frac{100}{20.7} = 4.81\,rev$

$-$ 1 rev $\rightarrow$ 20.7 cm.

How physically does it looks like



dia. VC

$\frac{66.1}{2} = 33.05$

Ticks: 49 ticks $\rightarrow$ 1 rev.

235.69 $\leftarrow$ 4.81 rev

Degrees to ticks

$A = 2\pi r$.

$A = 2\pi \times 133.1\,mm$

$A = 83.8\,cm$

360°

$-\frac{83.8\,cm}{20.7} = 4.04\,rev$

49 $\rightarrow$ 198 tick

Axle length.

What is jamming and rotating ?

FORMULA: $\frac{\text{Degree req}}{360} \times 198$

Sol $\frac{360}{360} \times 198 \rightarrow 198$

$\frac{90}{360} \times 198 \rightarrow \frac{198}{4} = 49.5$ tick (90°)

Going Straight.

$\therefore r = \frac{d}{2}$

$A = 2\pi r$

$= 2 \times 3.14 \times \left(\frac{66.1\,mm}{2}\right)$

$A = 20.7\,cm$

Taking Turn

$A = 2\pi r$

$= 2 \times 3.14 \times 133.1\,mm$

$A = 83.8\,cm$

$\frac{A}{20.7} =$ 4.04 revolutions.

4.04 x 455

rev for 360° $= 1840$

Turn Travel Sequence

480T → 1840T

- Variables
  - One rev = 480
  - One rev distance = 20.7cm
  - Bool = Moving
- Resetting
- Using While Loop

Epiciency
- Loop is empty
- No serial Printing in interrupts
- No delays in main workflow

Flow chart