809T Homework 7

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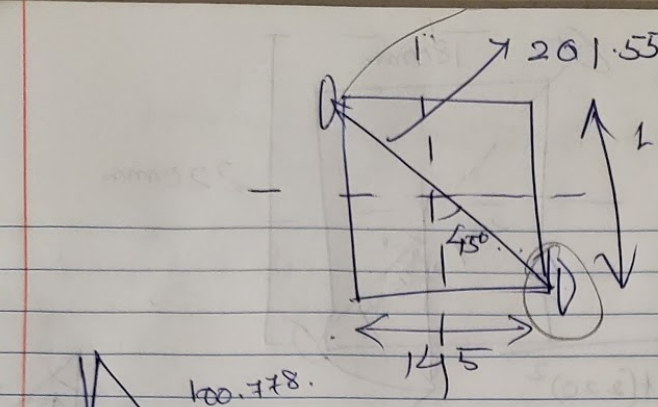
Part 2:

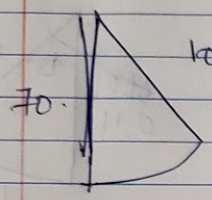
The assignment is to make the robot run in a straight line using the PWM from the Raspberry pi board. The Video to the link showing the robot moving forward in a straight line is below

https://www.youtube.com/watch?v=1pjswYnvmqE

Part 3:

This part of the assignment is to make the robot to move in reverse in the straight line and turn the robot in a certain specified angle. The calculation for turning the vehicle is shown in the image below and the link to the video demonstration is also mentioned.
https://www.youtube.com/watch?v=jKXnDvrtEBo





Circumference of Robot = $2\pi r \Rightarrow 2\pi \times 0.1007$ = 0.63271

Arc length = $\frac{45}{360} \times 0.63271$

= 0.070895

Revs Calculation

$\frac{120}{1} \times 0.070895 \times \frac{1}{2\pi \times 0.0325}$

= 41.661 Rotation

Ticks needed = $\frac{1}{2\pi \times 0.0325} \times 0.070895 \times \frac{960}{1}$

= 333.2910 ticks for 45°

= 1333.164 tick for 180°