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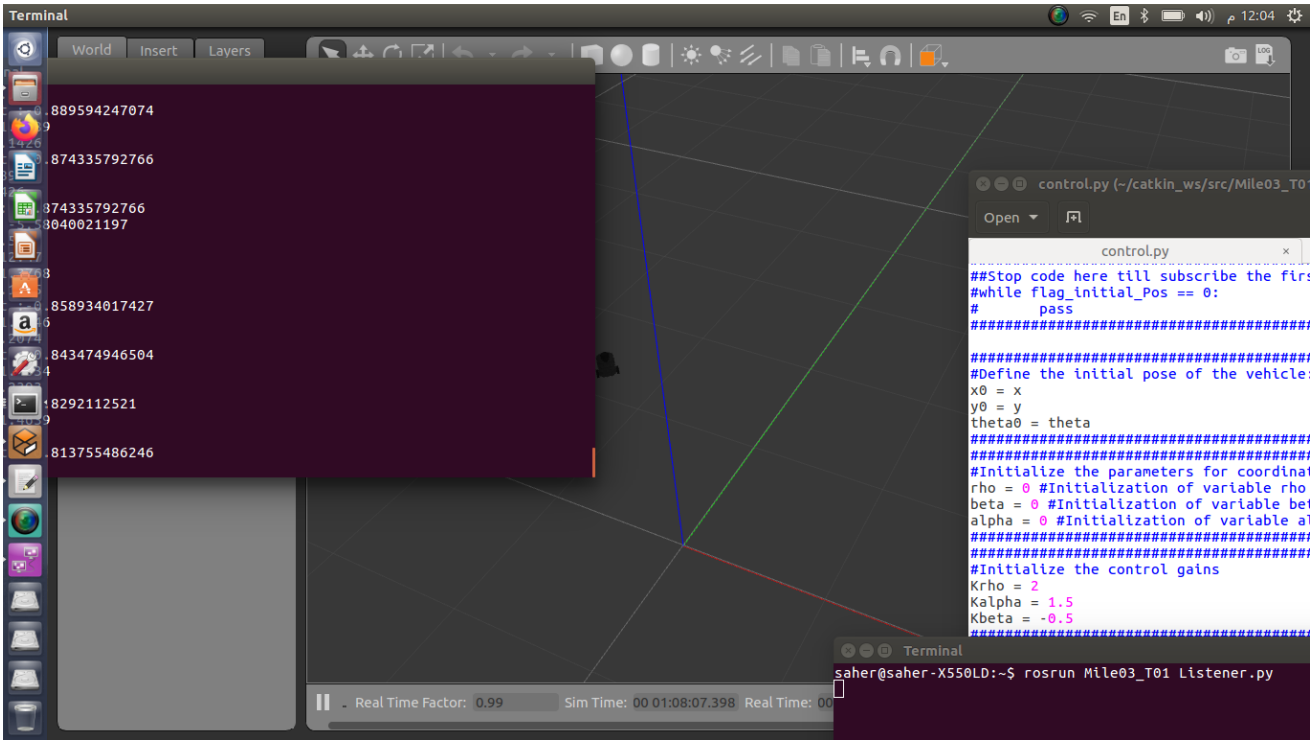
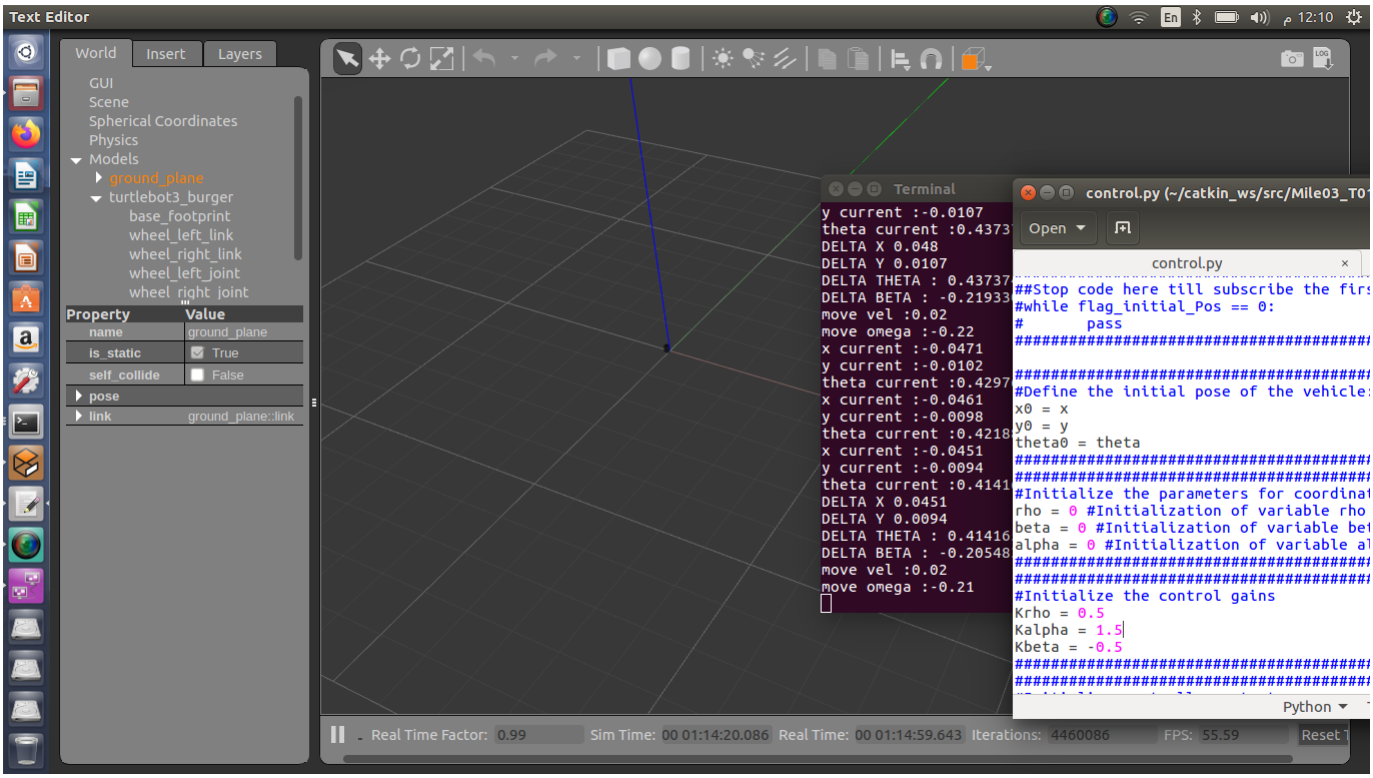
**By increasing** the "rho" gain as shown in the figure below , the robot takes a bigger curve and faster , and this lead to the robot move more distance and as shown it was desired to back from (1,1) to (0,0) and theta was entered in both cases by "0" , this increased the robot linear velocity as it was checked in "print" statement




Then by making the values back to it`s original values as shown , the robot back to (0,0) and it`s velocity decreases as it approaches the goal , and as was printed in the terminal .



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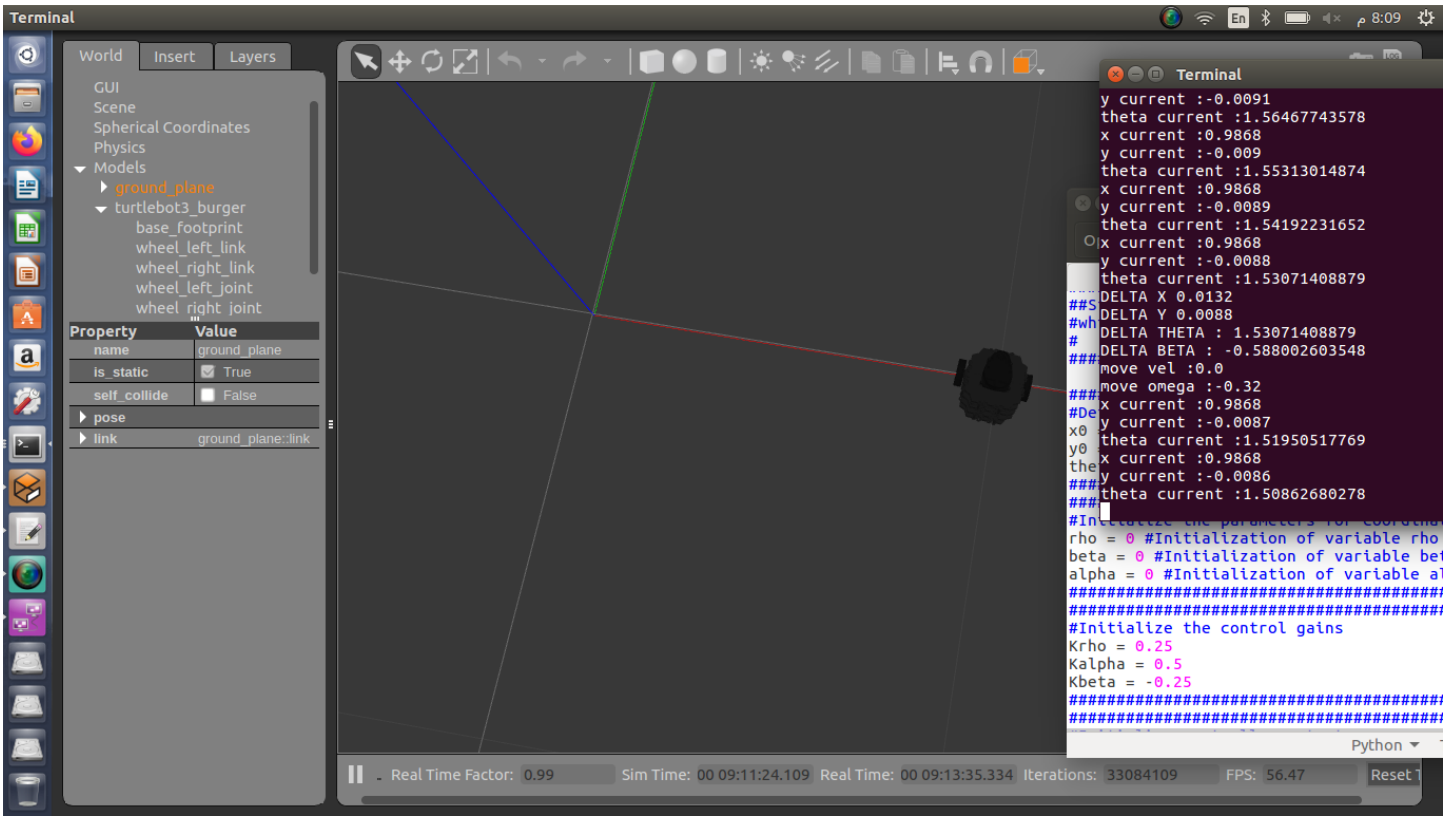
"Additional Note : " also when the rho value was fixed to it`s orignal value and , "alpha" and "beta" gains were increased , this made the robot rotates fast around it`s axis (Center) till the goal , and takes longer time to be stable , as when it rotates with high angular velocity near it`s goal , it loses it`s desired point and keeps rotating around it`s axis and this makes it take longer time to stop (Hold).

By decreasing the "rho" and "beta" gains lower than the Original value this makes the robot more perfect to deal with it`s goals as it will move linear and angular with lower velocity , but not very low in order not to consume more time as it will move slower , so in the shown figure below the "rho" and "beta" gains are reduced into their halves "0.25"s and the robot didn`t take much time to reach , and it`s route was perfect to the goals and didn`t keep rotating around it`s center .



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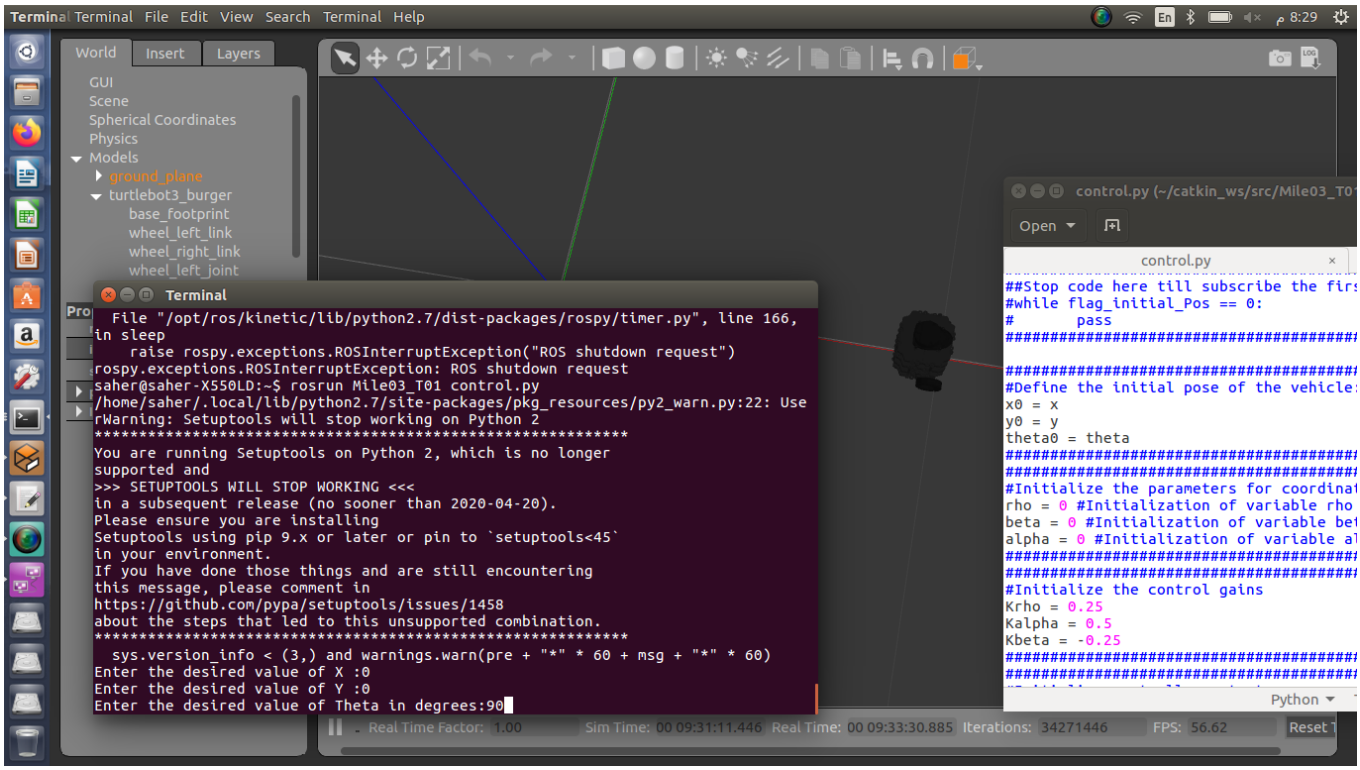
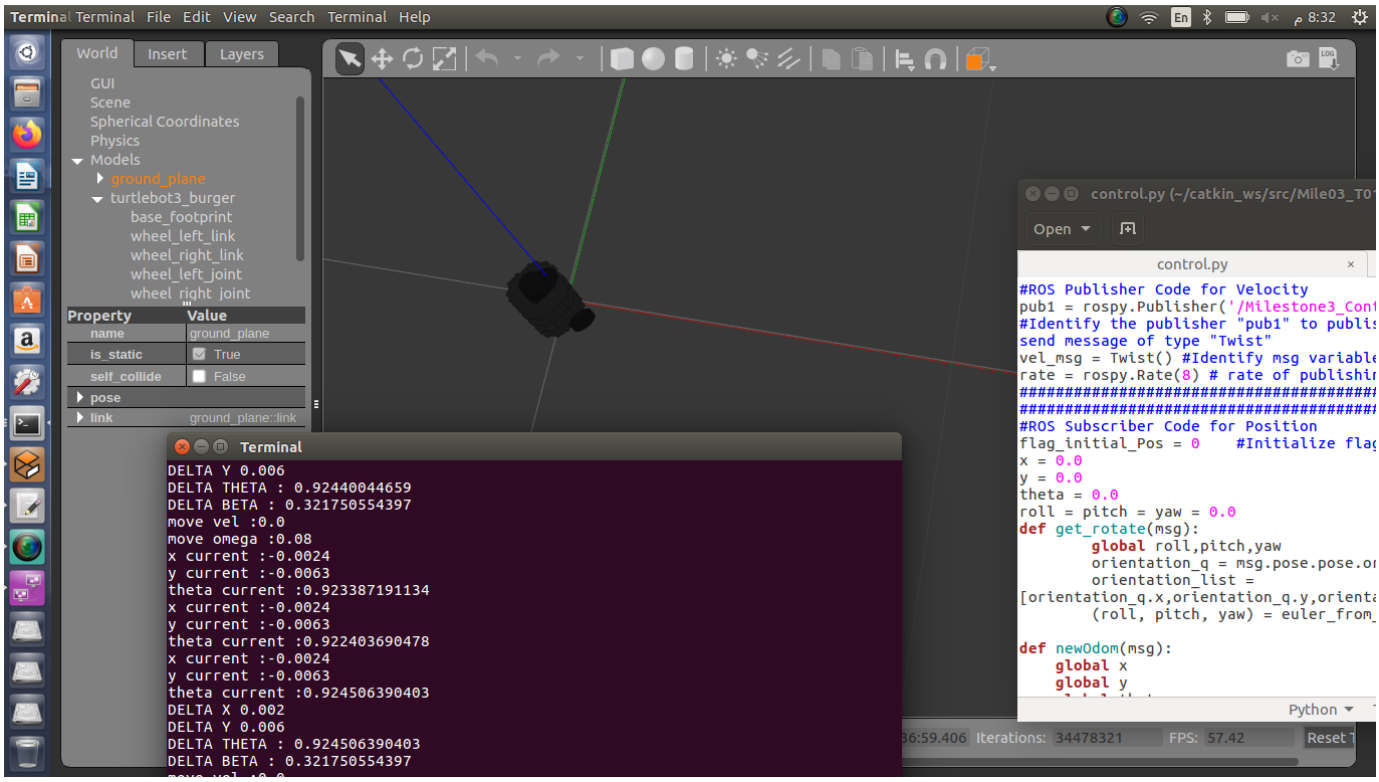
The figure below shows that the robot will return to (0,0) but theta will be 90

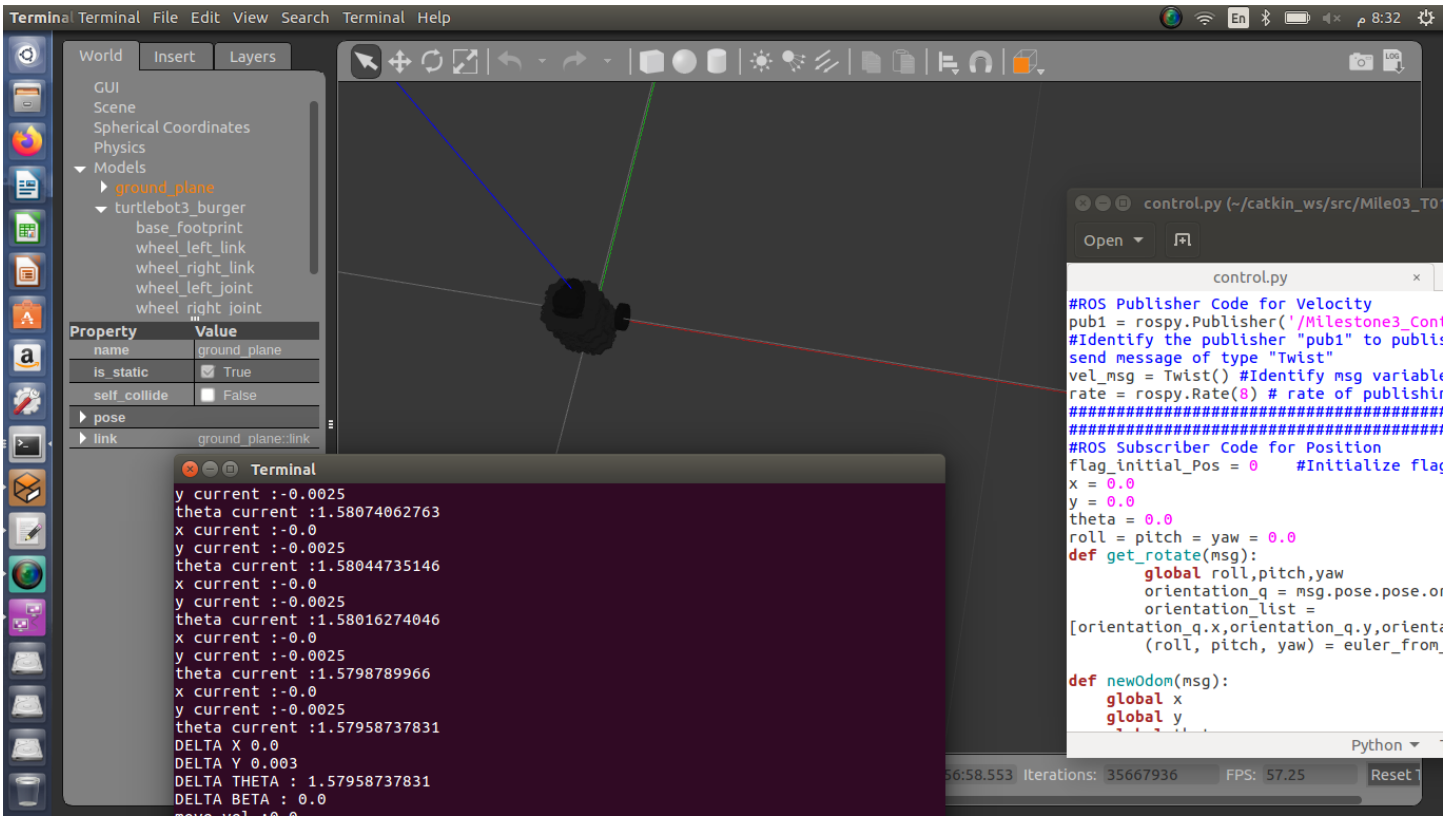



and then the figure below shows the robot goes slower as the gains were kept reduced as mentioned in the previous page and the figure after the figure below shows the robot becomes stable and slower as it approaches it`s goals then rotate slower to reach it`s theta value .



Made By : Saher

The figure below is the figure which is mentioned in the previous page , as the robot din`t take time keeping rotates around it`s center till be fixed in the desired new position from (x,y,theta) => (1,0,0) to (0,0,90) as shown below it reached




and the graph below is the "rosgraph" from the "rqt_graph" as also it as shown in the video that submitted of Task 01 Milestone 3