
PROJECT 1 INTRODUCTION TO ROS

Tanmay Khandait
Student ID : 1219385830
CIDSE, Arizona State University
tkhandait@asu.edu

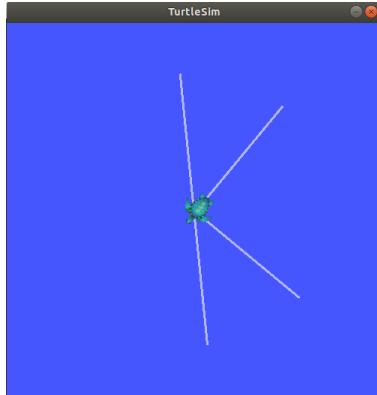
February 3, 2021

1 Approach

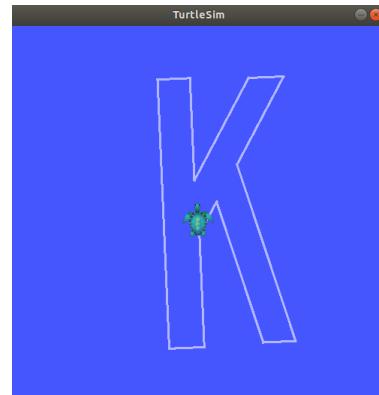
The first letter of my last name is "K". The idea was to move bot around and form the letter "K". The first step was to make two functions: `def forward()` and `def rotate()`. The function `def forward()` move the turtlebot forward for a given amount of distance, while the function `def rotate()` rotates the bot in a certain angle in both clockwise and counter-clockwise direction.

Once these function were set up, I started with the "K". I started with a simple one (Figure 1a), and I was able to generate the output. The idea was to do a sequence of rotations and go forward: $-90^\circ \rightarrow$ go forward 4 units $\rightarrow 180^\circ \rightarrow$ go forward 8 units $\rightarrow +180^\circ \rightarrow$ go forward 4 units $\rightarrow 45^\circ \rightarrow$ go forward 4 units $\rightarrow -180^\circ \rightarrow$ go forward 4 units $\rightarrow -90^\circ \rightarrow$ go forward 4 units $\rightarrow -180^\circ \rightarrow$ go forward 4 units.

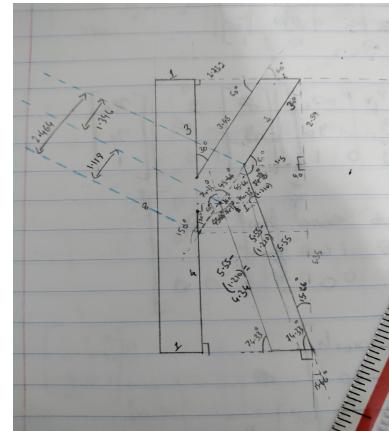
Once this was achieved, I went ahead to modify and make a more pleasant looking "K" (fig. 1b). I did this by going back to the paper and designed a "K" by estimating the angles using trigonometry and geometry. Figure 1c is a the work that was done on the paper. The code [my_initials.py](#) provides the code for regenerating this modified "K" (fig. 1c).



(a) A simple "K"



(b) Modified "K"



(c) Lengths and angles for generating Modified "K"

Figure 1: 1a is the output for a simple "K". 1b is a modified "K" and can be generated using the [my_initials.py](#) file. The lengths and angles for 1b was found out using a scale and some trigonometry and geometry.