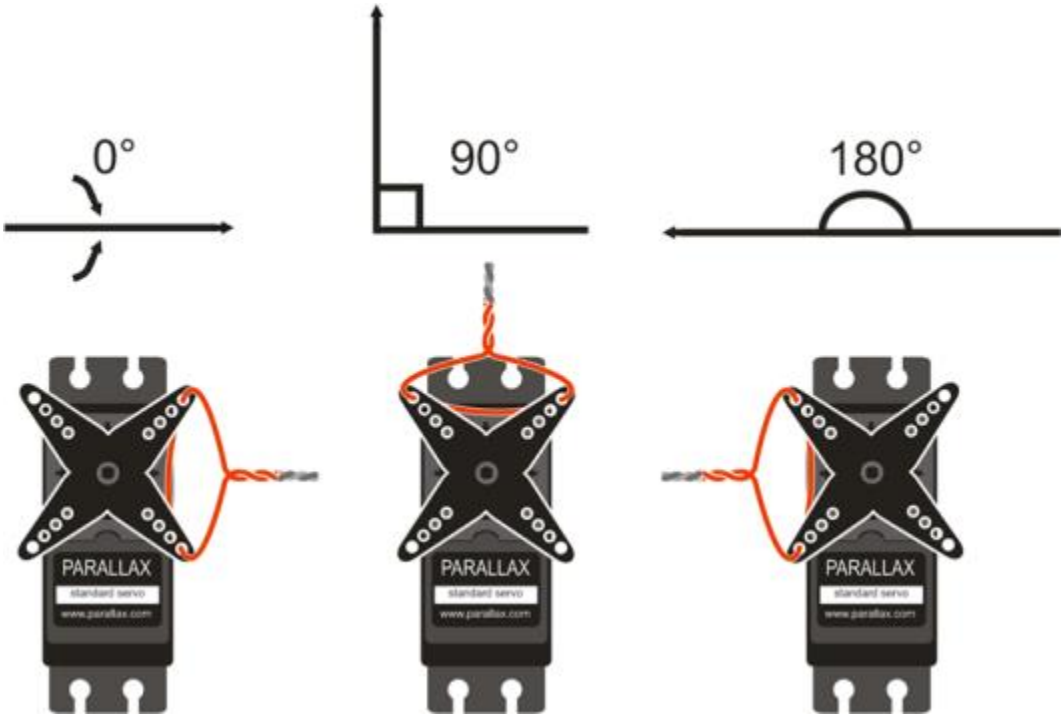
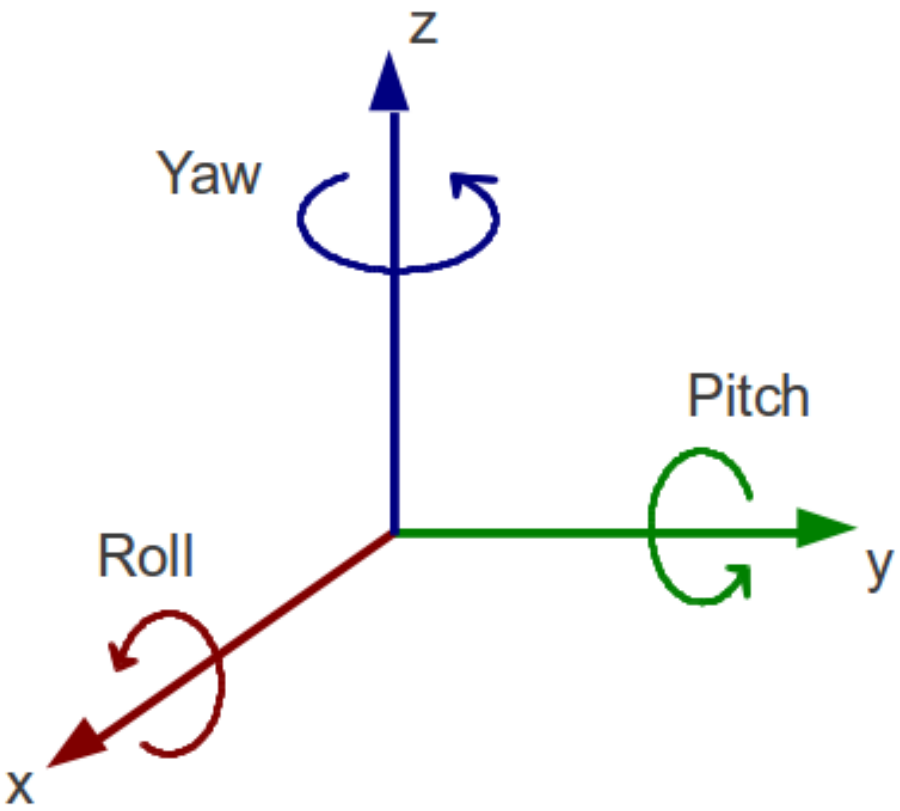
OTTO BIPEDAL ROBOT

Introduction

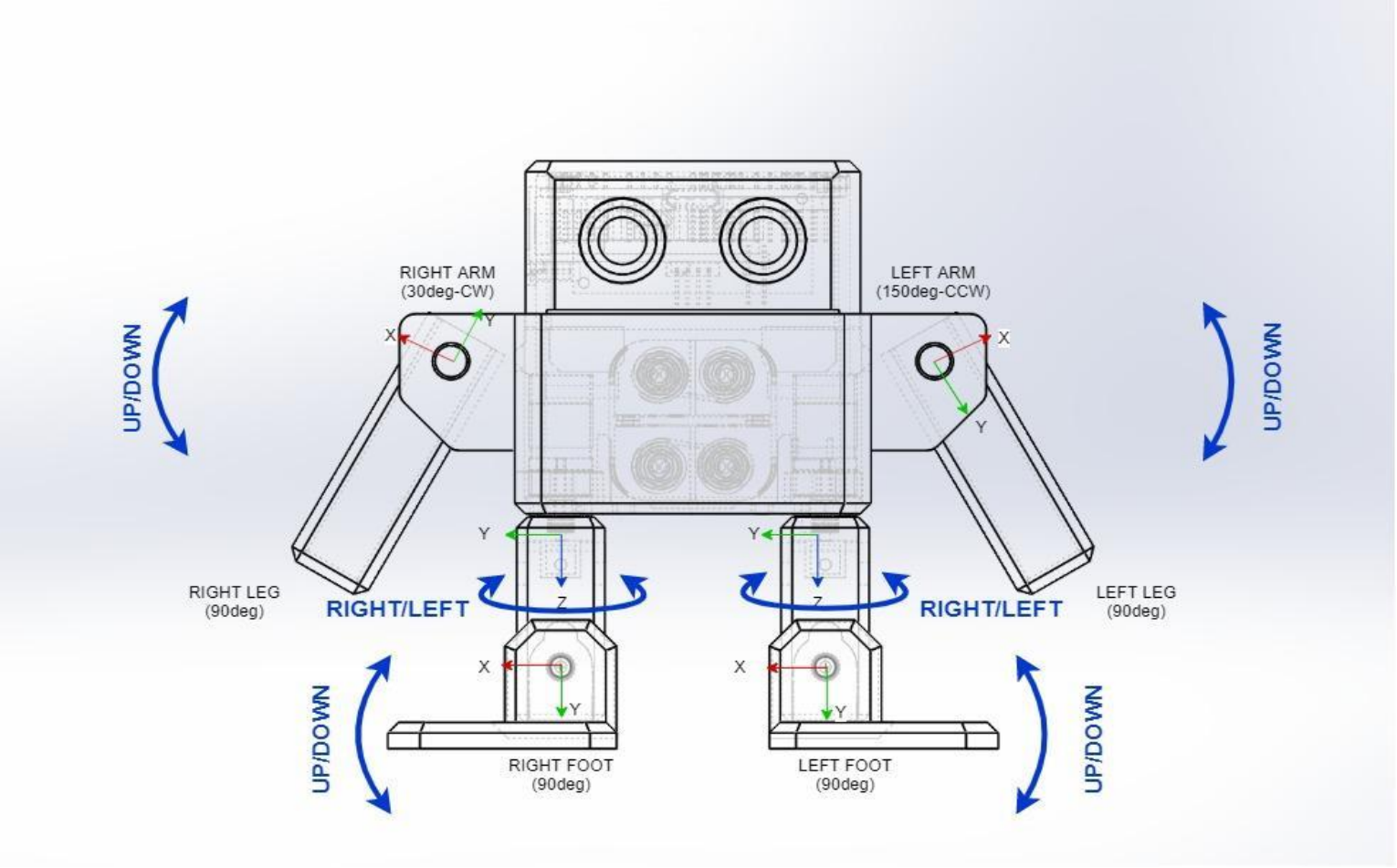
This document contains the illustration of different positions of otto robot. Each illustration contain axis of rotation while keeping the rotation always in Z axis as a standard followed in robotics. Up/Down and Right/Left movement of servos are shown in the figures. The illustrated angles correspond to the actual angles the otto will operate on. Servo angle ranges from 0-90-180 degrees where in this robot 90 deg is taken as mean position. Maximum angle difference from the mean position is 70 degrees on either side. Clockwise and counter-Clockwise rotations shown in the following pictures are inferred from the movement of servo as shown in the figure while movies from 0-180 servo moves in a counter clockwise direction.



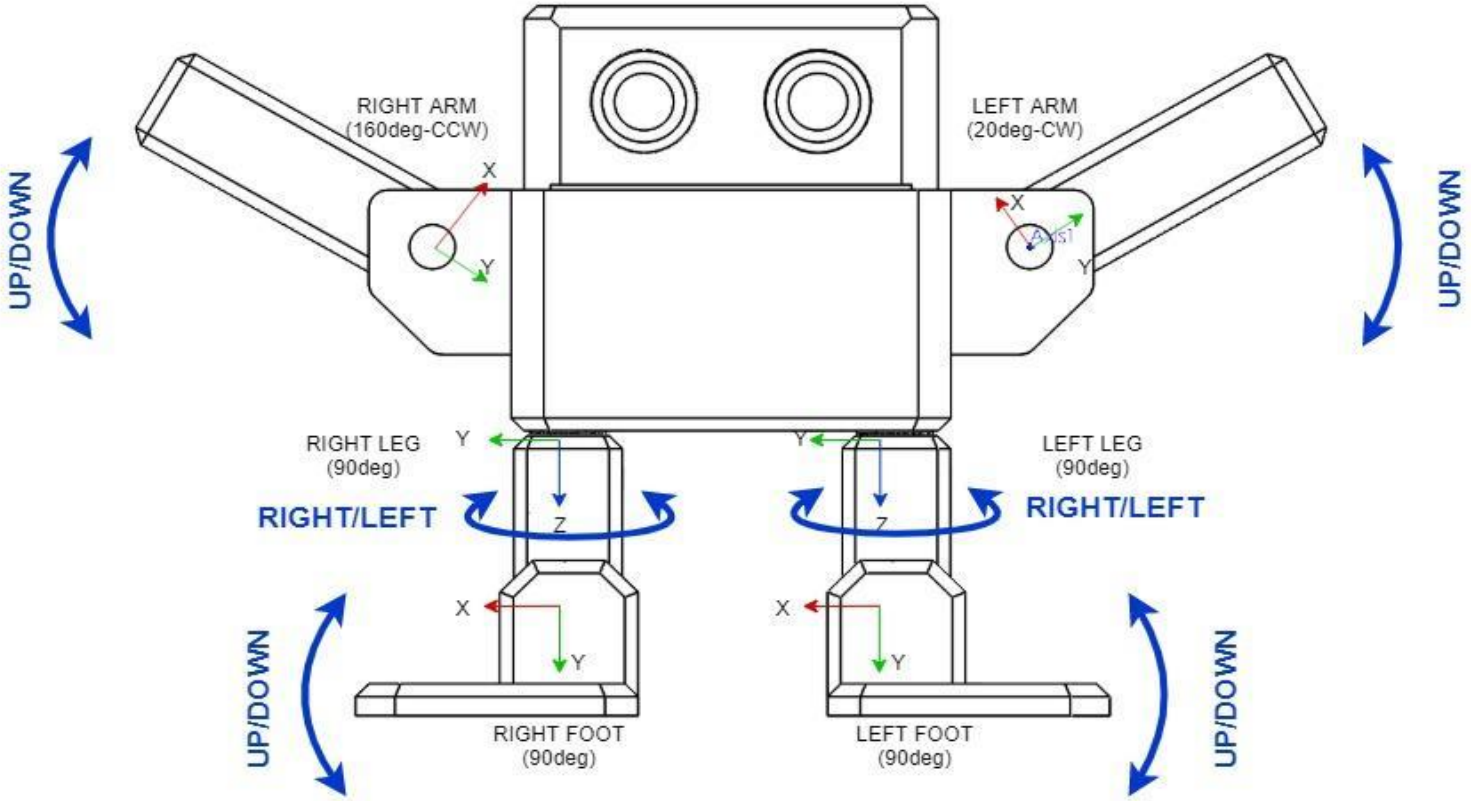
Standard color code for axis is used in the figures as shown below


z
Yaw
Pitch
Roll
y
x

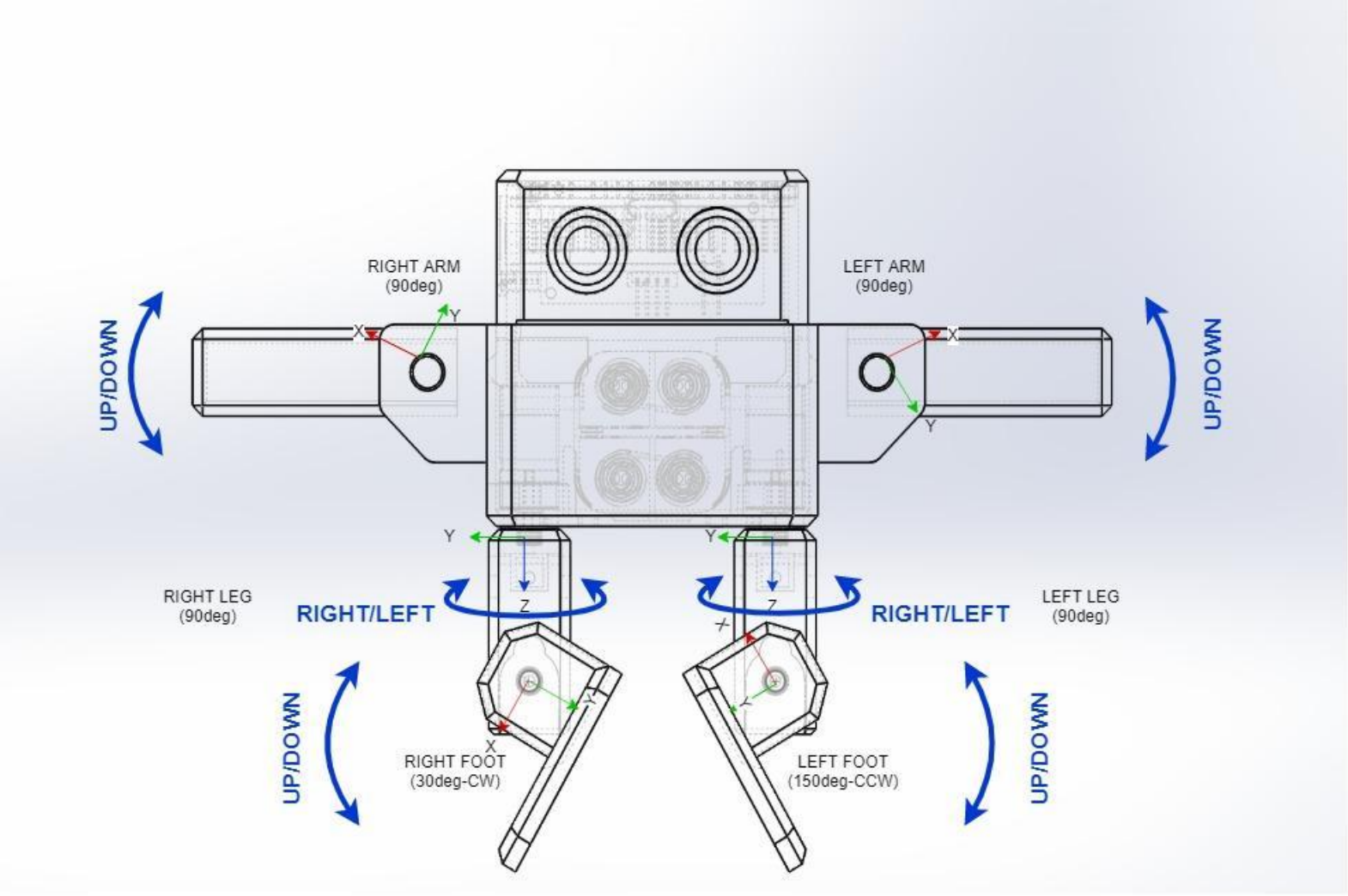
HOME POSITION



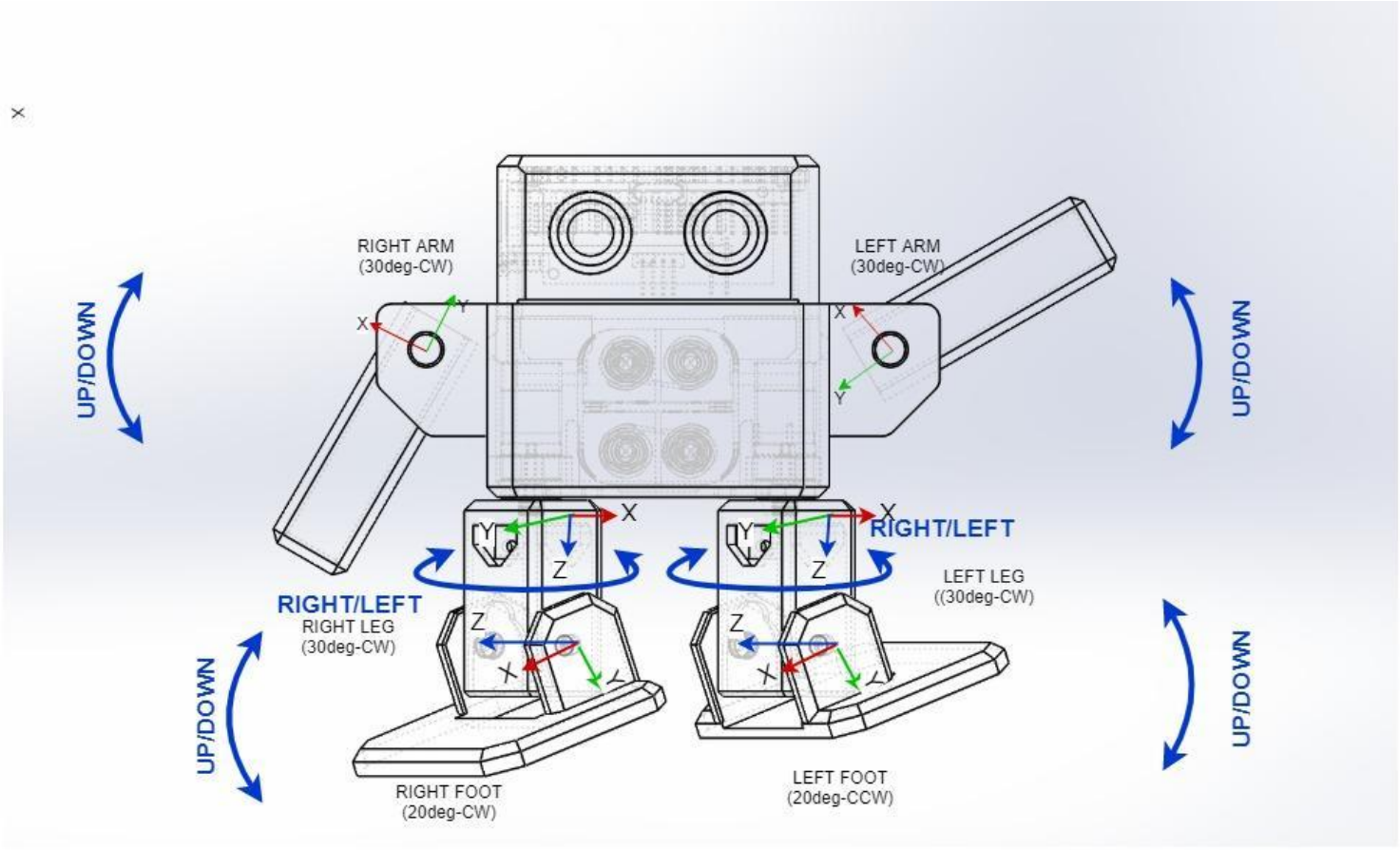
HANDS UP


RIGHT ARM
(160deg-CCW)
LEFT ARM
(20deg-CW)
UP/DOWN
UP/DOWN
RIGHT LEG
(90deg)
LEFT LEG
(90deg)
RIGHT/LEFT
RIGHT/LEFT
UP/DOWN
UP/DOWN
RIGHT FOOT
(90deg)
LEFT FOOT
(90deg)

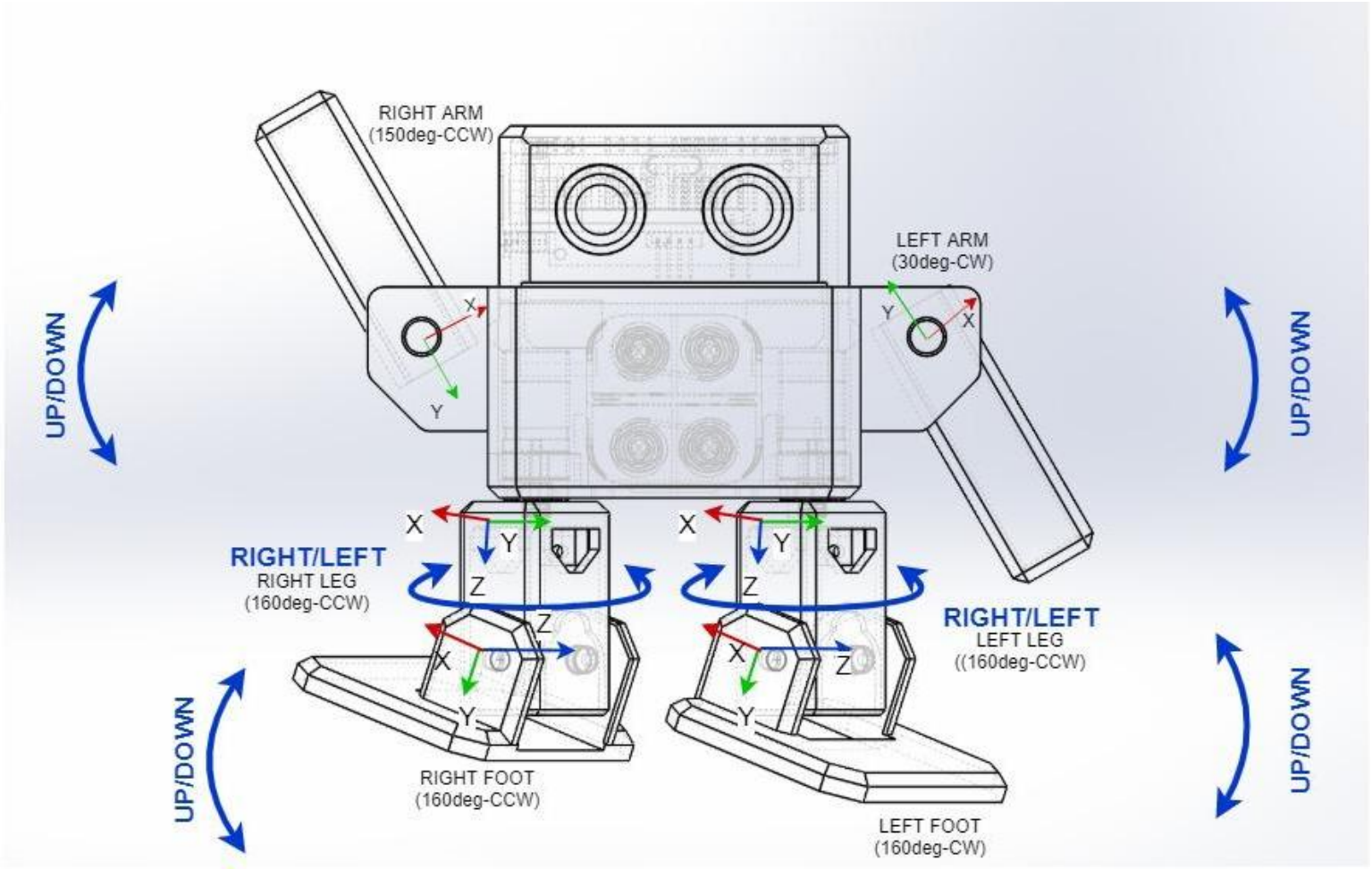
JUMP UP


RIGHT ARM
(90deg)
LEFT ARM
(90deg)
UP/DOWN
UP/DOWN
RIGHT LEG
(90deg)
RIGHT/LEFT
RIGHT/LEFT
LEFT LEG
(90deg)
UP/DOWN
UP/DOWN
RIGHT FOOT
(30deg-CW)
LEFT FOOT
(150deg-CCW)

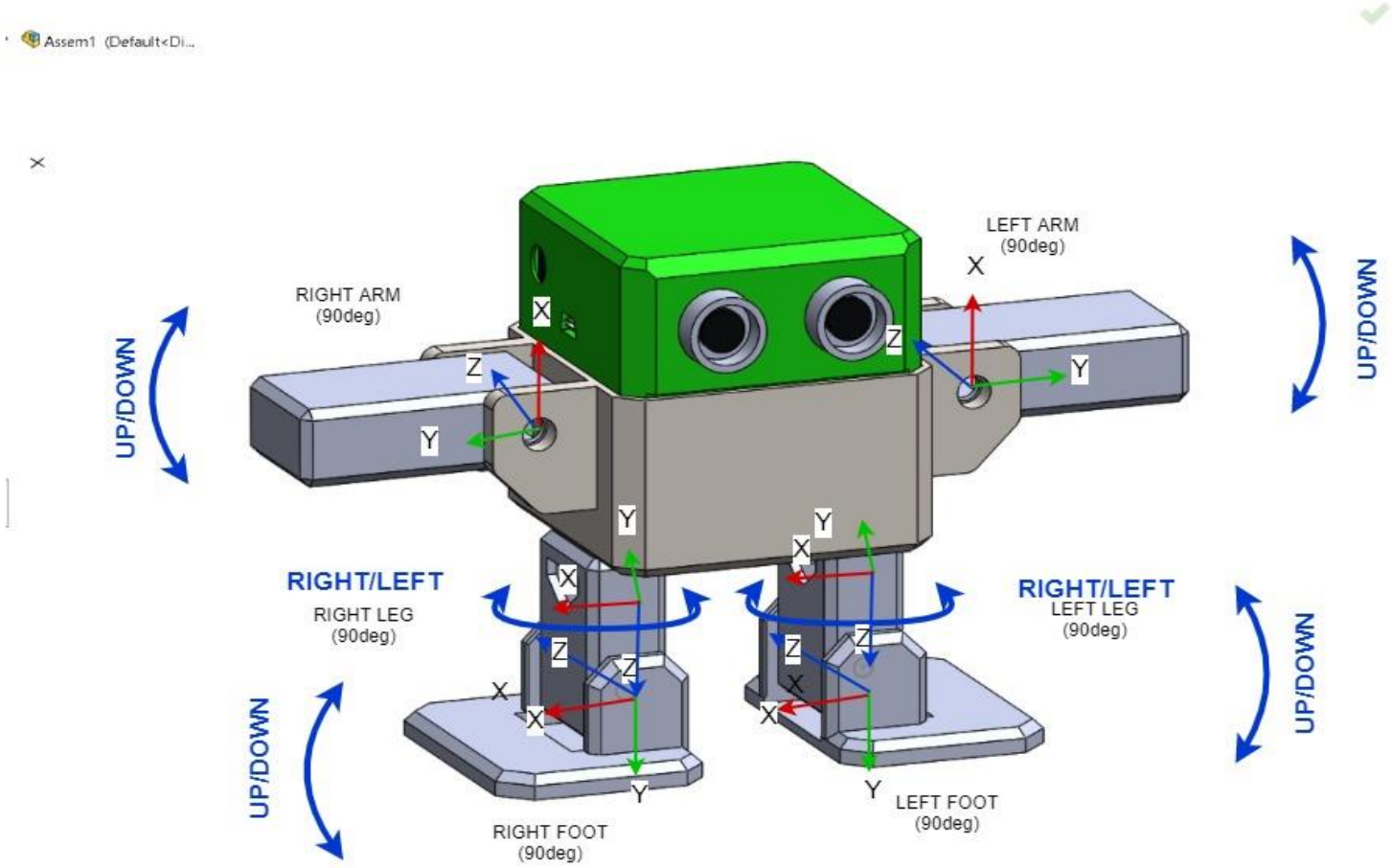
WALK A


RIGHT ARM
(30deg-CW)
LEFT ARM
(30deg-CW)
UP/DOWN
UP/DOWN
RIGHT/LEFT
RIGHT LEG
(30deg-CW)
RIGHT/LEFT
LEFT LEG
((30deg-CW)
UP/DOWN
UP/DOWN
RIGHT FOOT
(20deg-CW)
LEFT FOOT
(20deg-CCW)

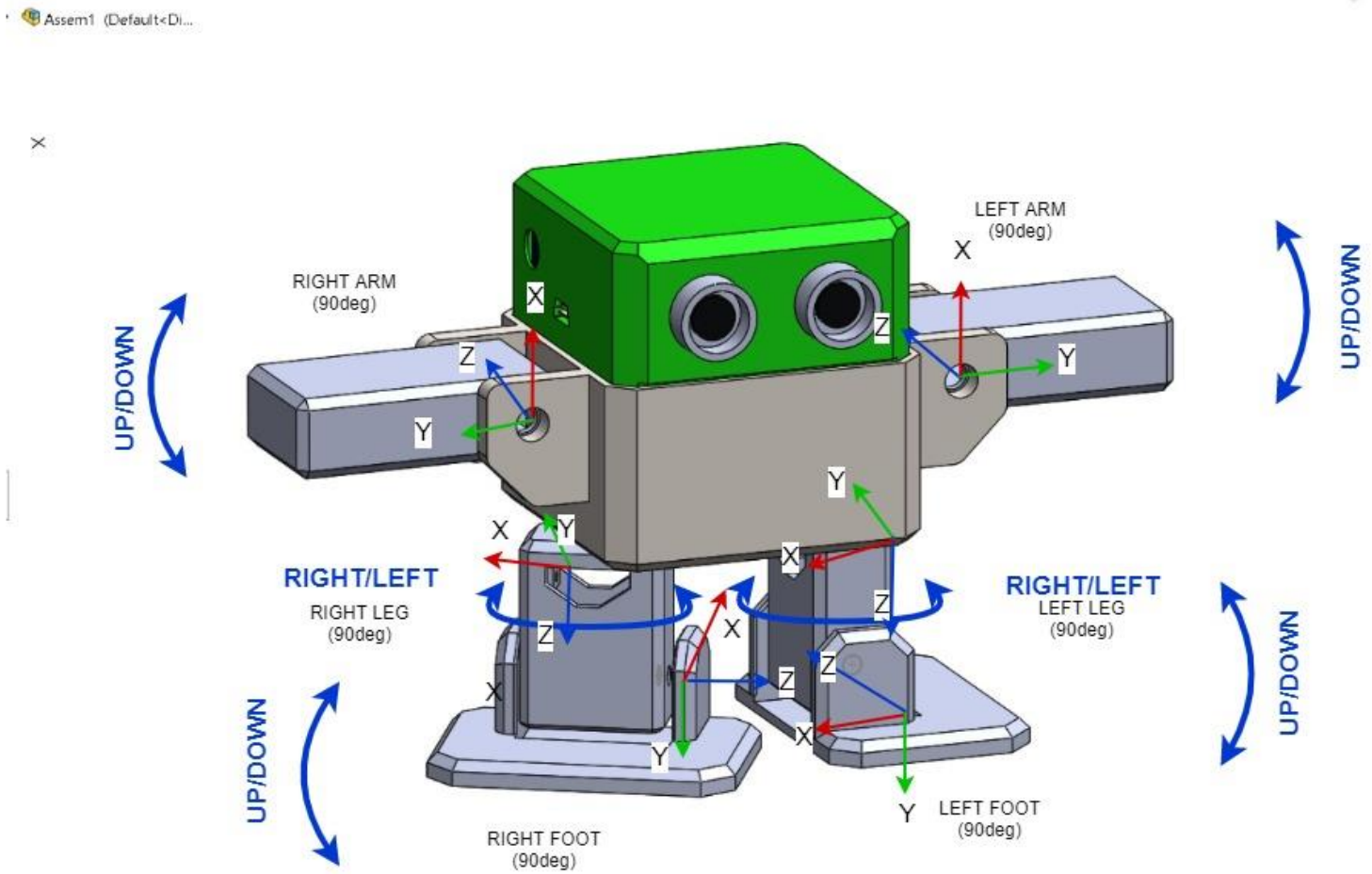
WALK B


RIGHT ARM
(150deg-CCW)
LEFT ARM
(30deg-CW)
UP/DOWN
UP/DOWN
RIGHT/LEFT
RIGHT LEG
(160deg-CCW)
RIGHT/LEFT
LEFT LEG
((160deg-CCW)
UP/DOWN
UP/DOWN
RIGHT FOOT
(160deg-CCW)
LEFT FOOT
(160deg-CW)

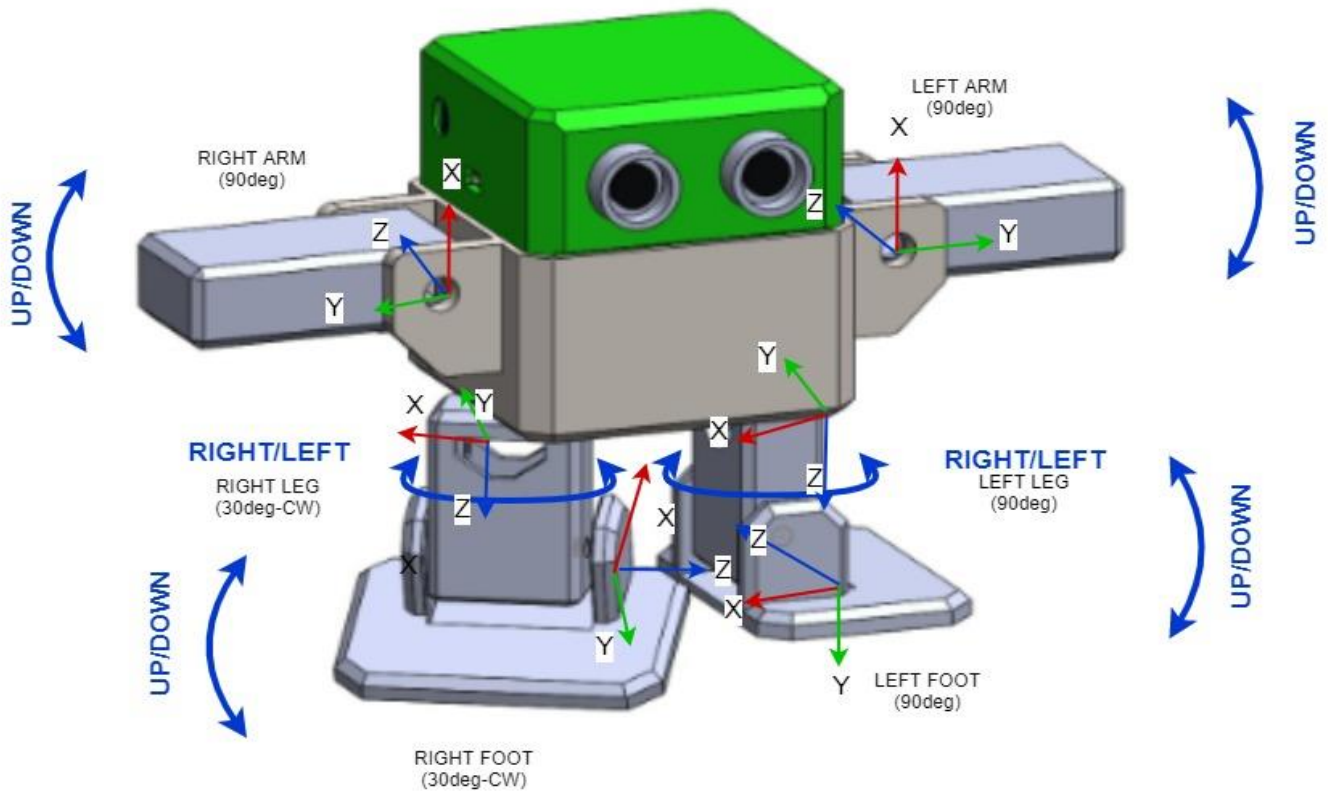
NORMAL POSITION



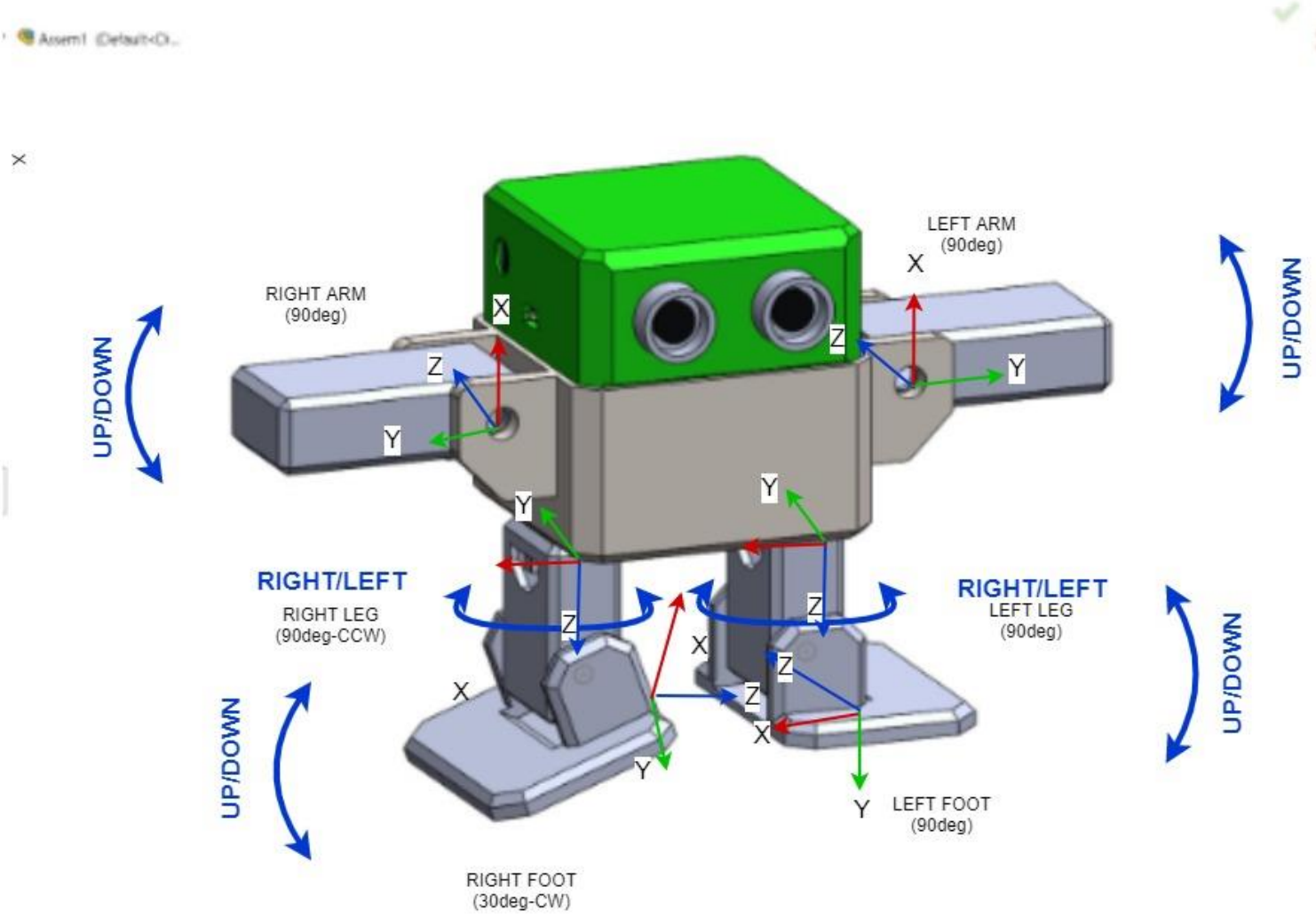
WALK RIGHT POSITION A



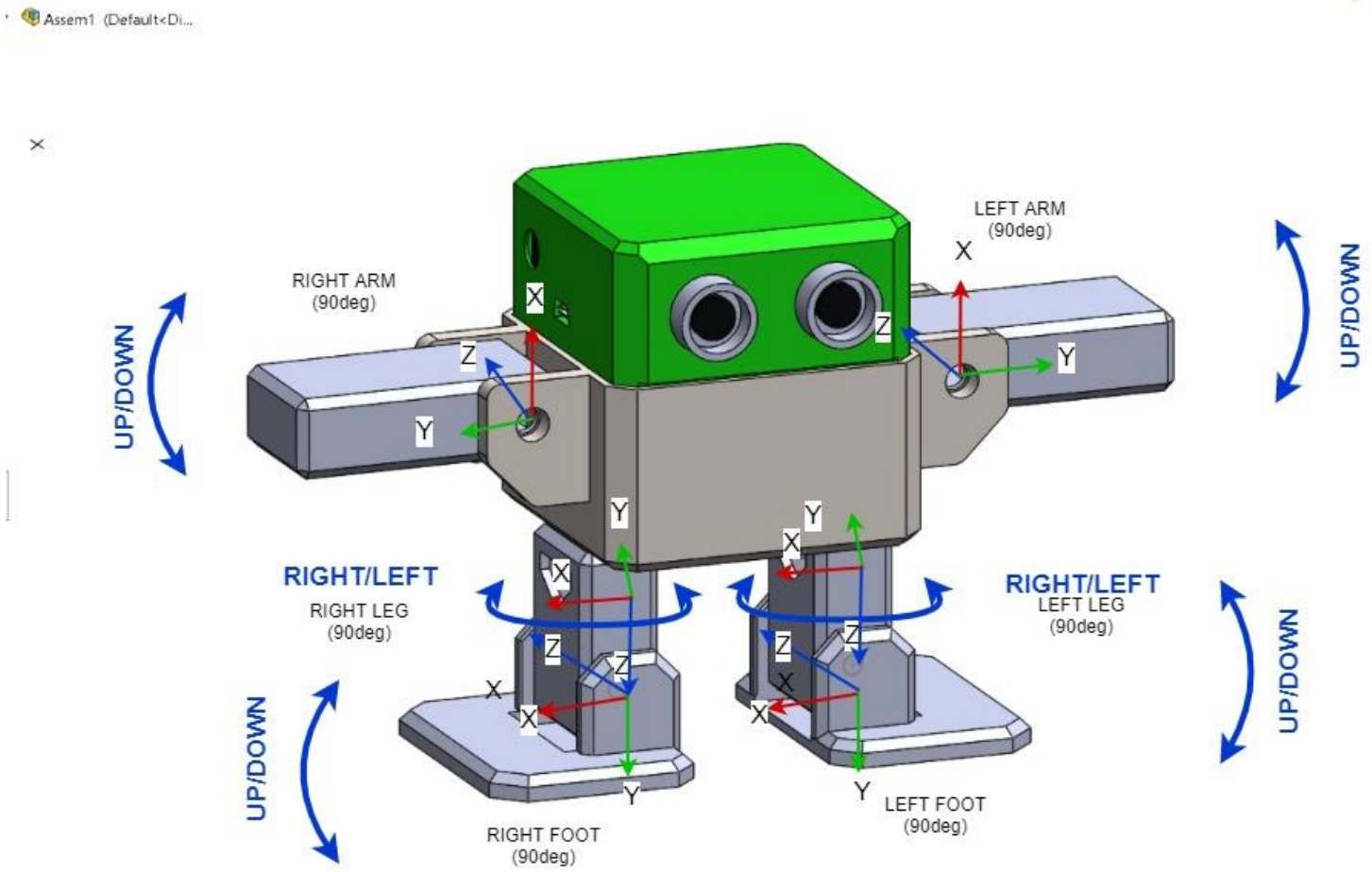
WALK RIGHT POSITION B



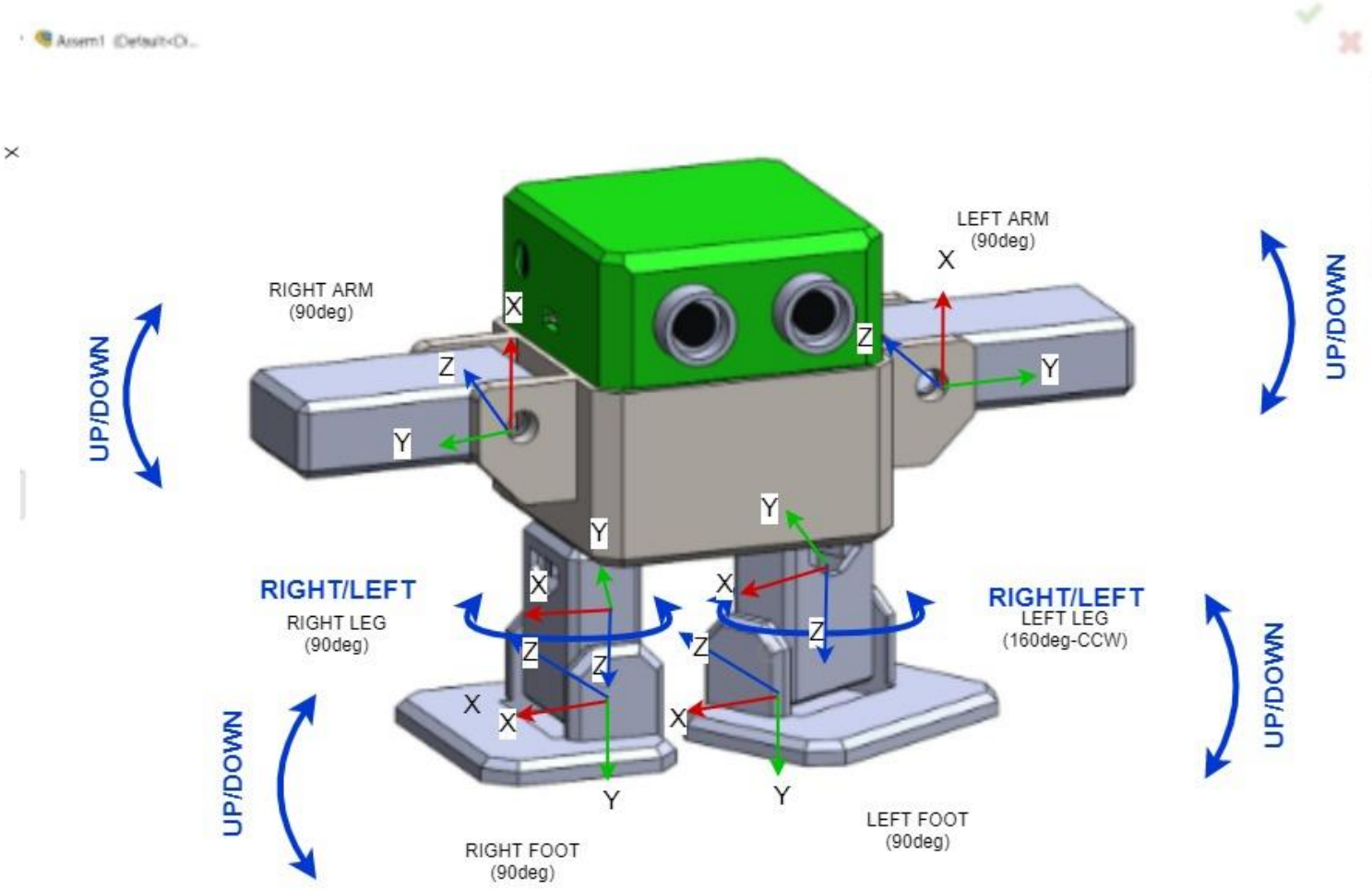
WALK RIGHT POSITION C



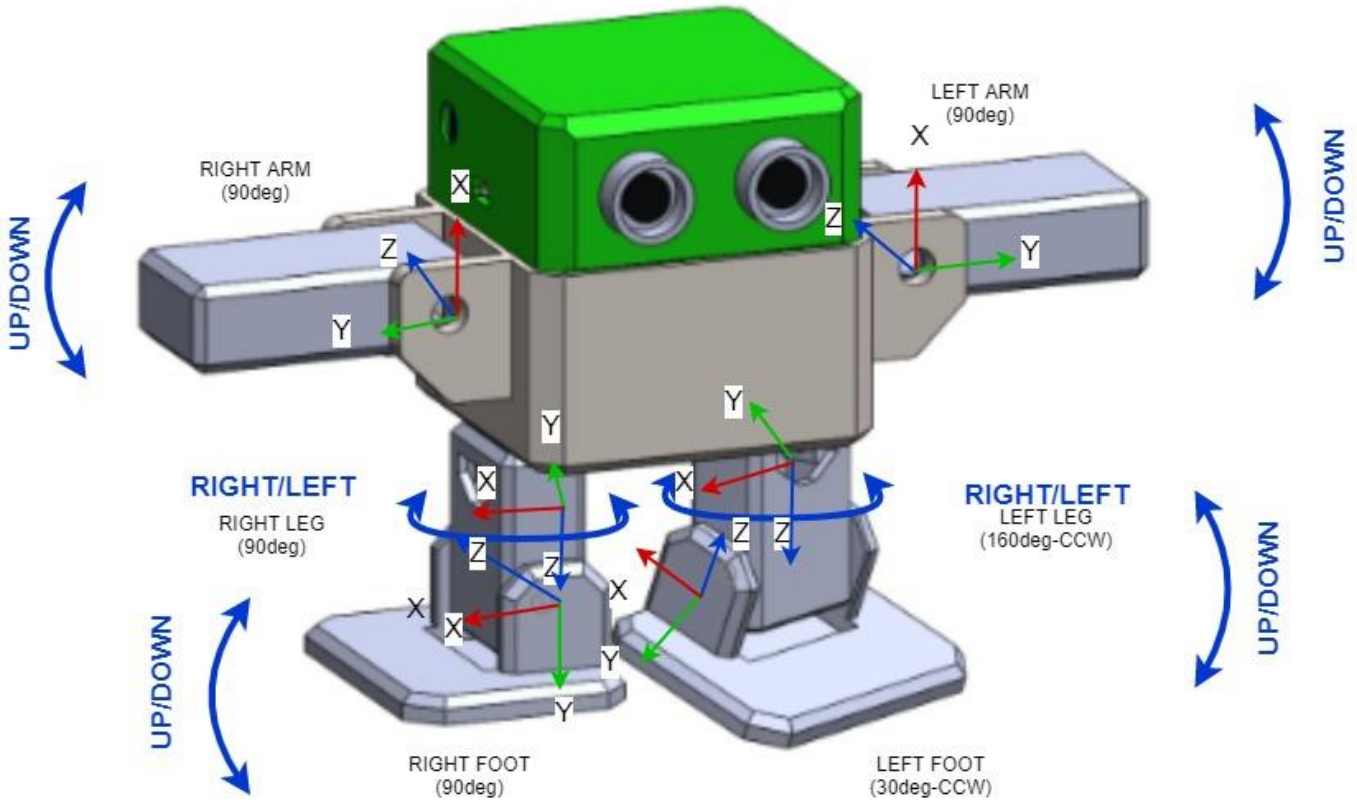
NORMAL POSITION



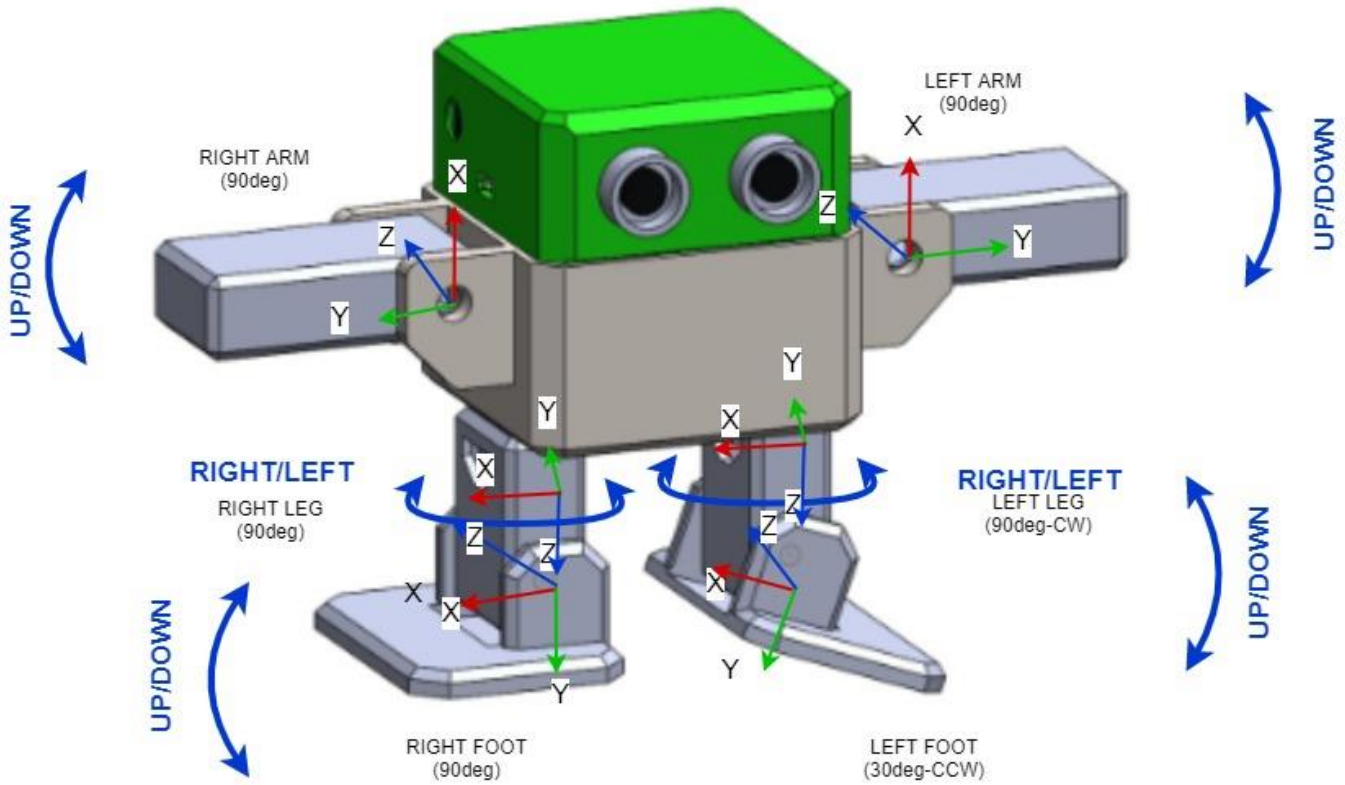
WALK LEFT POSITION A



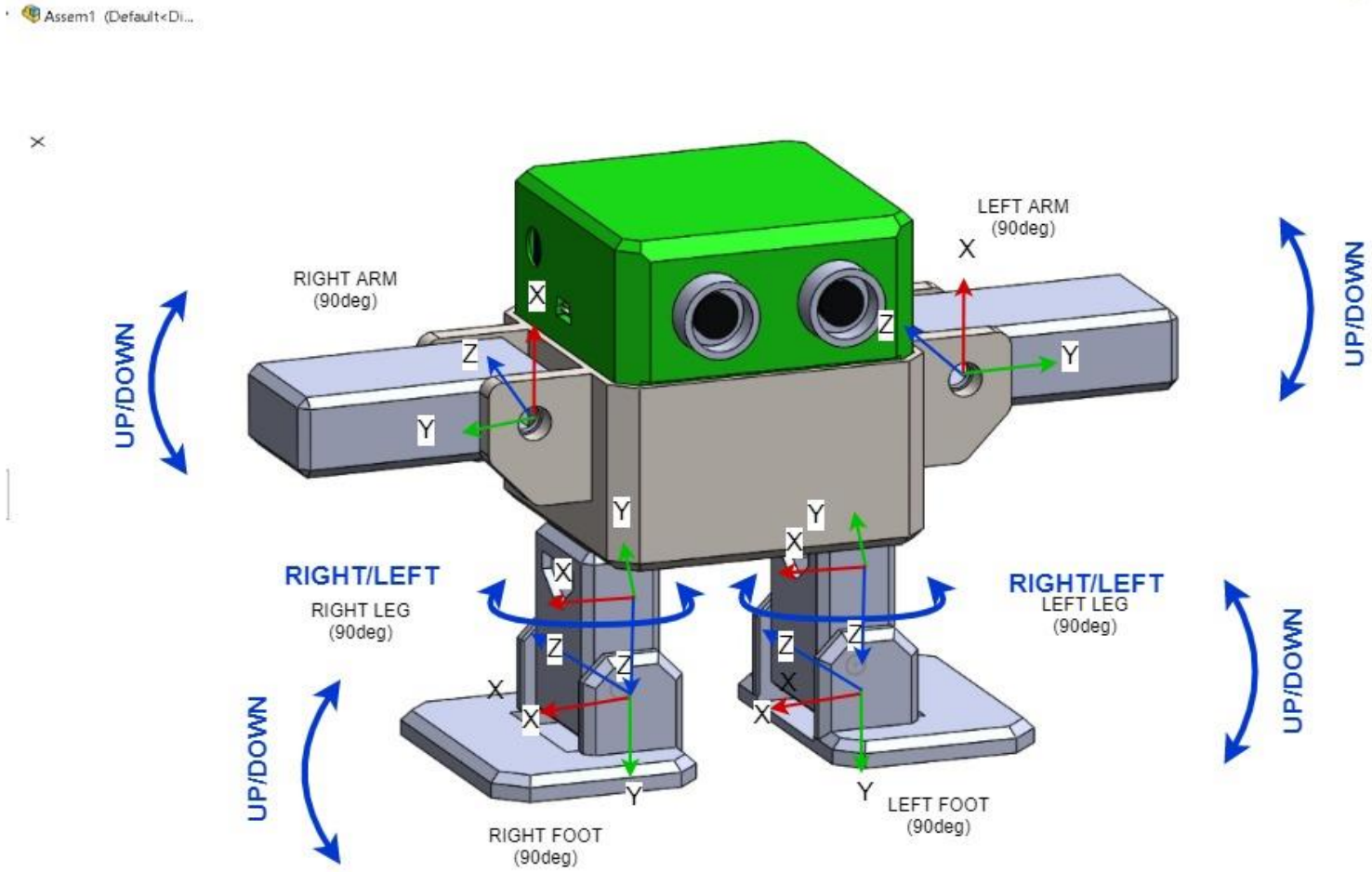
WALK LEFT POSITION B



WALK LEFT POSITION C



NORMAL POSITION

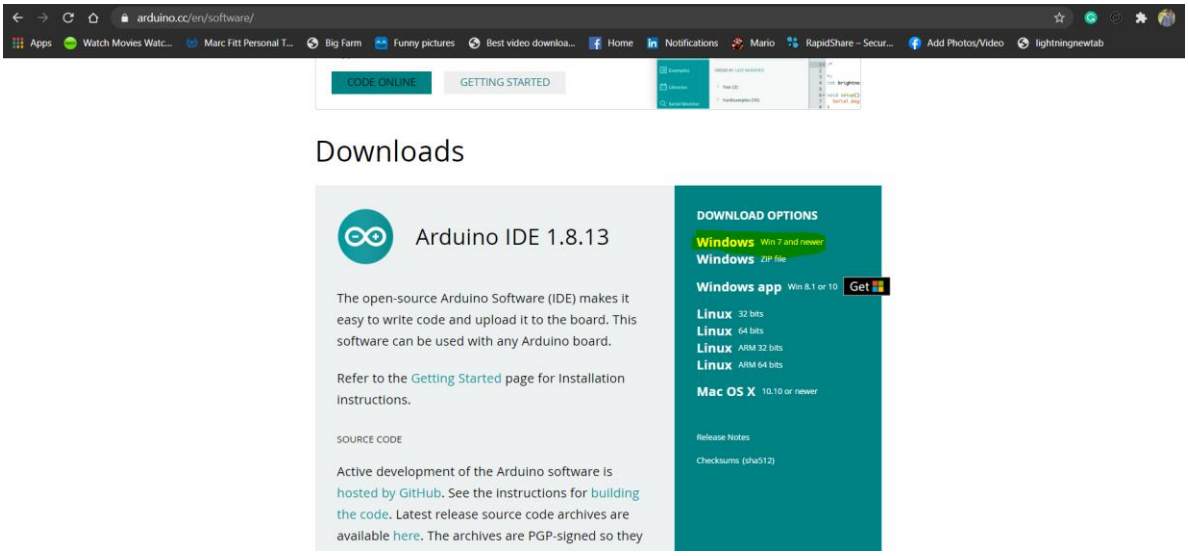


CODE:

Arduino IDE:

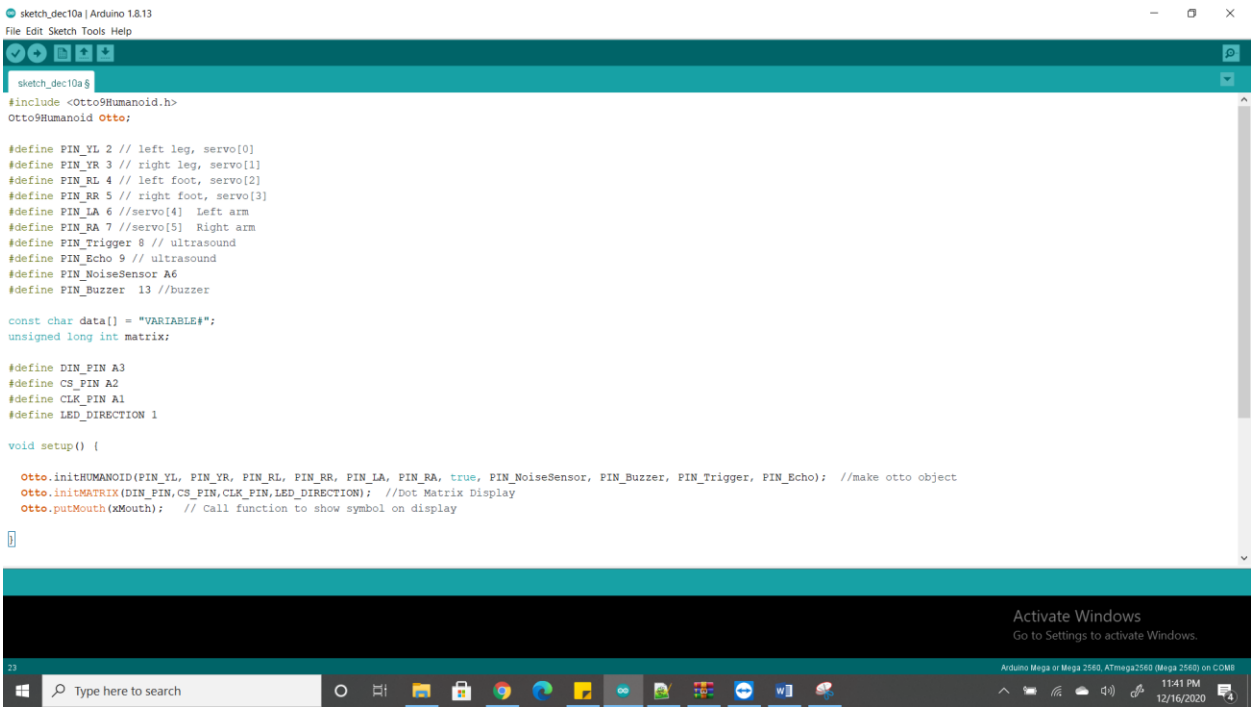
Go to following link and download Arduino IDE windows/Mac whichever system you have:

https://www.arduino.cc/en/software/

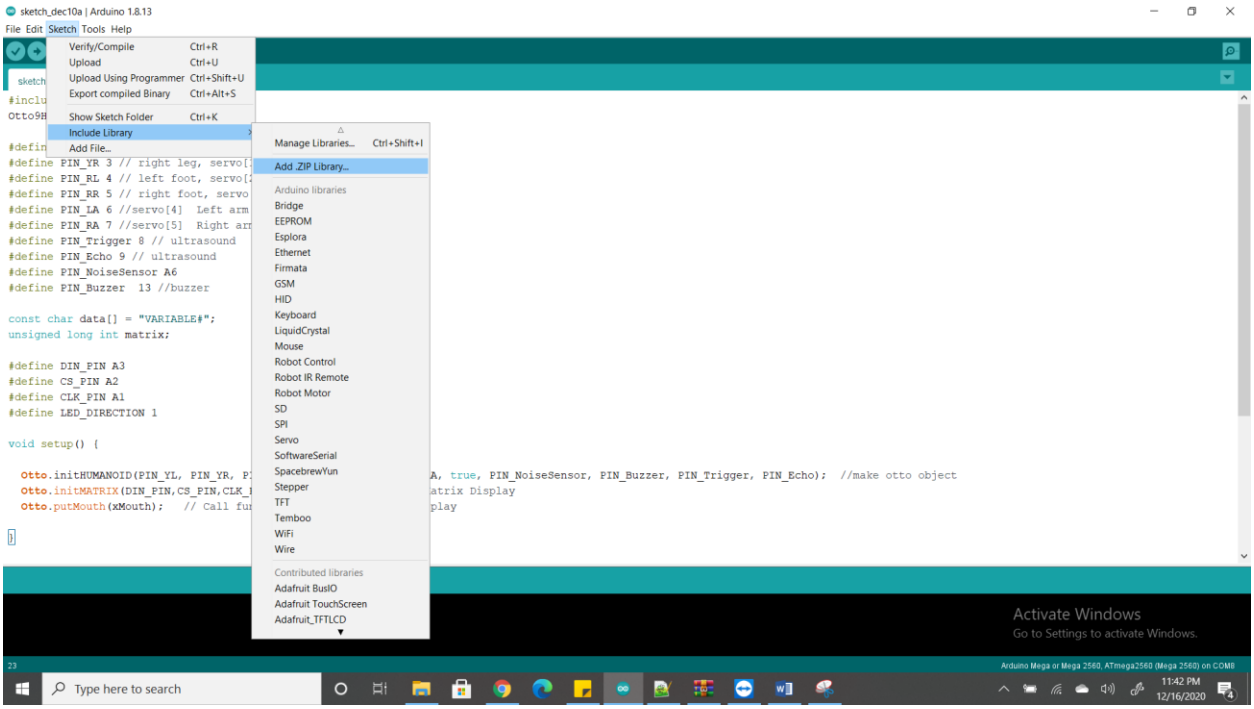


Adding Library:

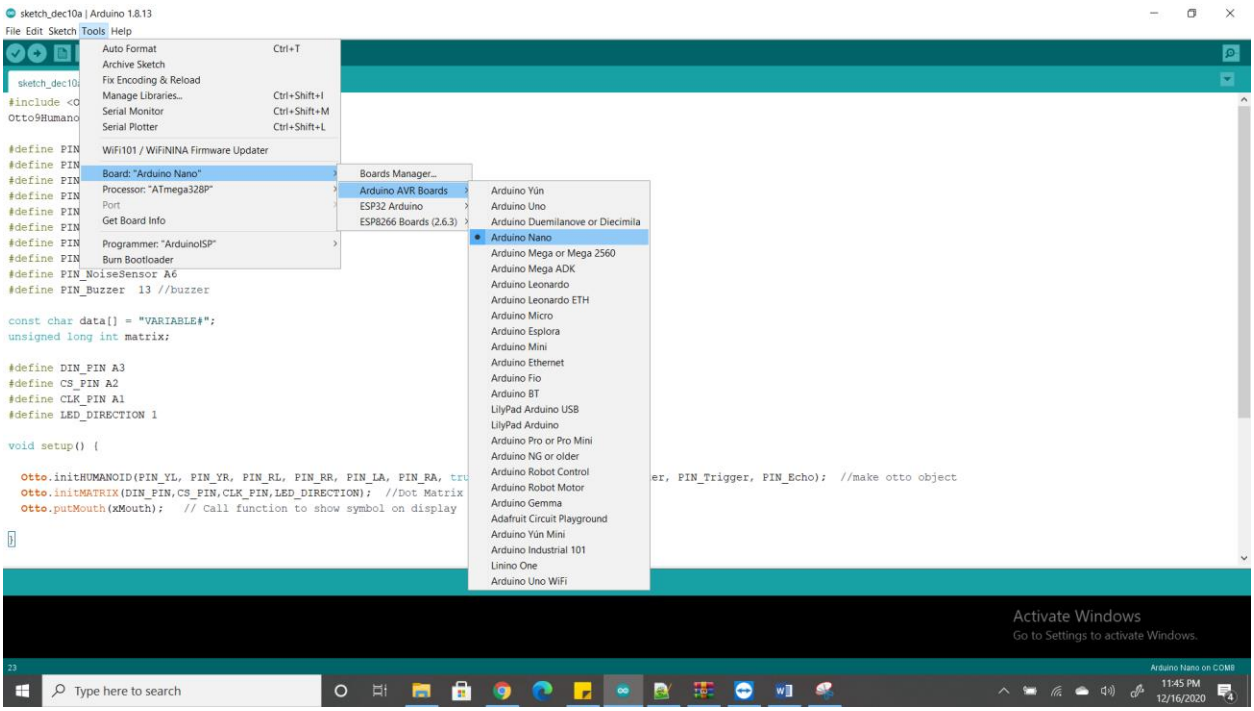
Open Arduino IDE:



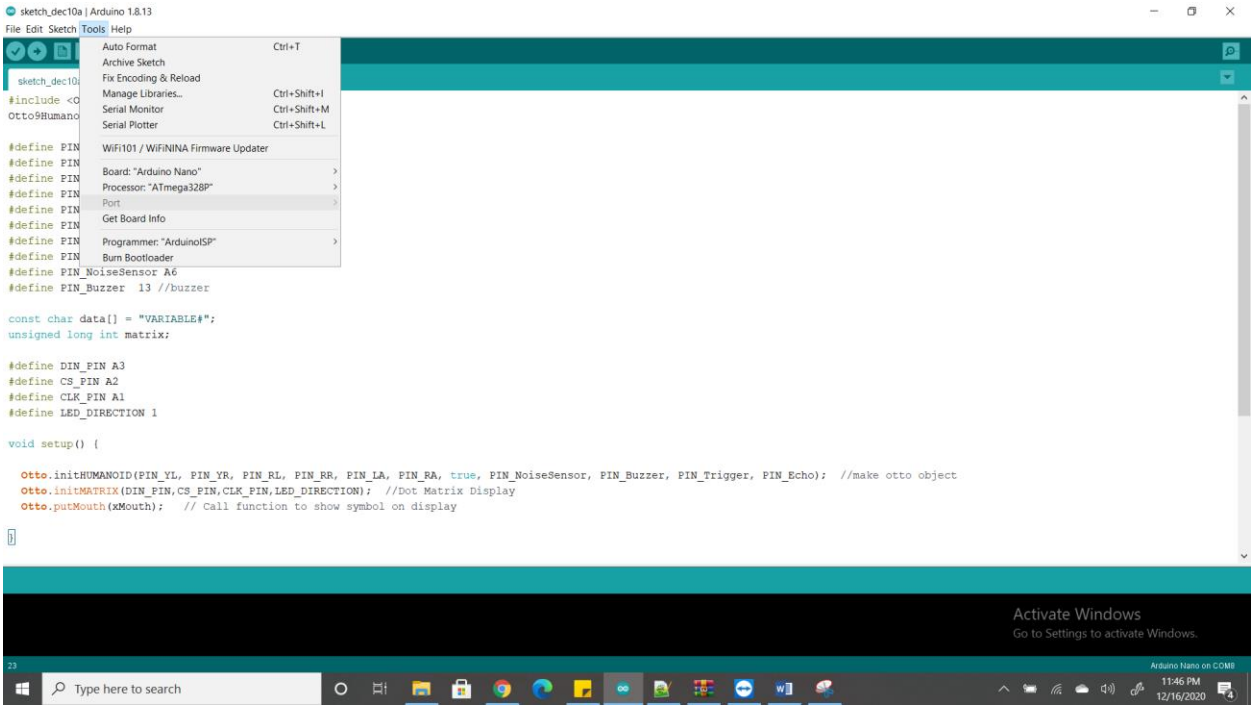
Go to Tools –> Include Library -> Add Zip library (Library can be found in attached library folder)



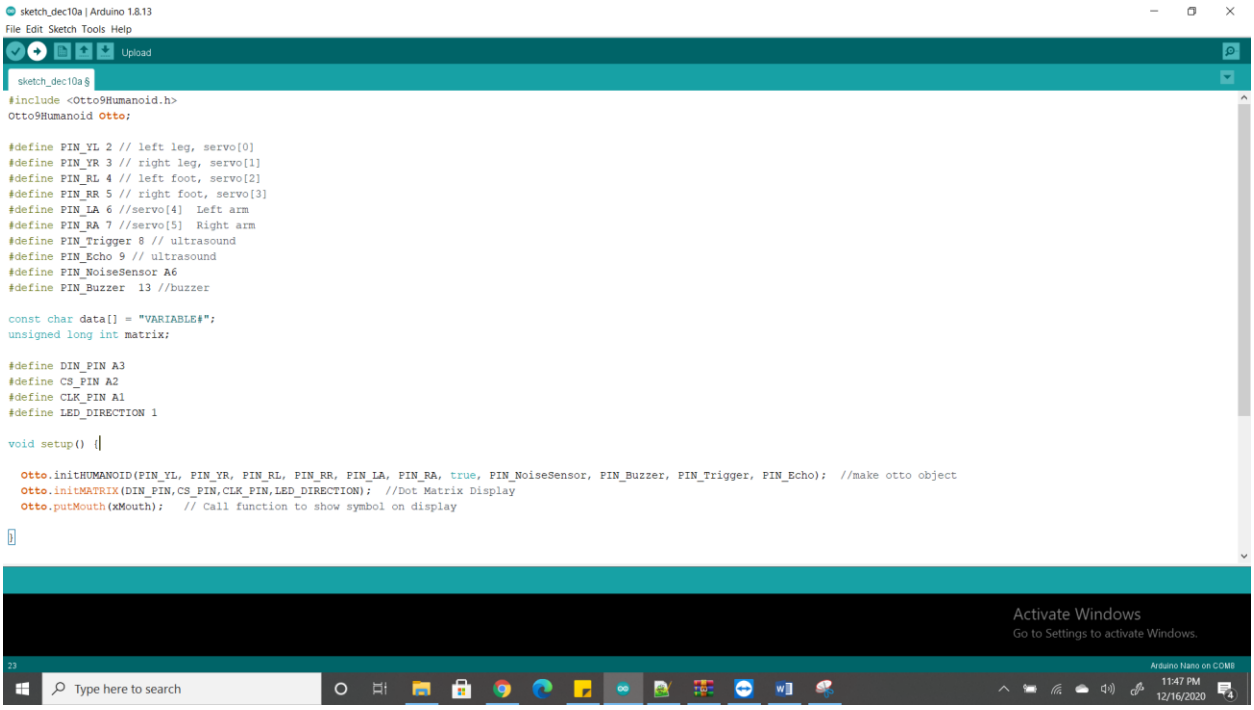
Open the Code file Named otto_arms in the attached sketch folder: then select the right board in the tools Board AVR board/ Directly Arduino Nano.



Attach the USB cable with otto and then the PC you will see the available serial port here”



Upload the Code using the second arrow shown in the snapshot:



Blockly:

https://ottodiy.github.io/blockly/www/