2024-05-10 07:51:25.587631
**********
**********
Greetings!
**********
----------PROJECT ANALYSIS REPORT----------
**********
PROJECT TITLE: DESIGN AND DEVELOPMENT OF A ROBOTIC ARM GRIPPER FOR
TRANSPLANTING TOMATO SEEDLINGS
**********
Name:----------William Wachira Mwangi(22AG71A07)----------
**********under the guidance of**********
Professor Rajendra Machavaram
Professor Peeyush Soni
----------
INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR
Date:----------07/01/2024----------
**********
Research focus
Design and Prototype a robotic arm gripper
*Conduct a comprehensive analysis of gripper's motion dynamics
*Establish a coherent causal relationship among operational variables
**********
21**********
Optimised Parameters (a, b, c): [ 0.20783886 -0.03604994  2.1157152 ]
**********
Invalid parameters in the fitted curve.
Correlation Coefficient of gear ratio and angular displacement: 0.8101
Correlation Coefficient of rack displacement and angular displacement: 0.9999
Correlation Coefficient of rack displacement and gear ratio: 0.8060
**********
R-squared for the fitted curve is: 0.9956760742919778
**********
The covariance of the parameters a,b,c are:
Covariance of a: 3.676523078947466e-05
Covariance of b: 4.252209593786408e-07
Covariance of c: 1.0795514658339364e-05
**********
Standard Deviations of a, b, c respectively: [0.00606343 0.00065209 0.00328565]
p_values: [0. 0. 0.]
a: Estimate=0.2078,SE=0.0061, t=34.2774,          p=0.000000e+00
b: Estimate=-0.0360,SE=0.0007, t=-55.2837,          p=0.000000e+00
c: Estimate=2.1157,SE=0.0033, t=643.9254,          p=0.000000e+00
Average gear ratio in the range 0.0s to 0.8s is: 1.8233159949968 + 0.009365723143217 49*I*pi
**********
**********
The value of y Intercept: -0.0227
The value of Slope: 38.6685
**********
Average radius: 6.0
Maximum tomato strain: 0.48
Total cross section area: 113.1
**********
The constant c is: 6.73877396706786
**********
**********
validation correlation value: 0.9998977422
Validation of prediction model with R squared using corrcoef(): 0.9997954948653242
Validation of prediction model with R squared using linregress():  0.9997954948653242
Validation of prediction model with standard error using linregress():  0.0032804309114066958
slope:  0.9997954948653242
intercept 0.02333599750494697
**********