Writing CIM using myCobot 280 M5

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ABSTRACT

This project presents a Python script that precisely controls a MyCobot robotic arm by utilizing the pymycobot library. The script demonstrates the programmability and versatility of the MyCobot platform by coordinating a sequence of synchronized joint and coordinate movements. The script highlights the capabilities of the MyCobot in a six-dimensional space by allowing for both continuous and incremental adjustments through the use of specific commands and jogging functionalities.

1. OBJECTIVE

This experiment aims to use the Python pymycobot library to control a MyCobot robotic arm. The code moves and commands the MyCobot in a series of steps to get it to certain joint angles and coordinates. To make sure that every movement is carried out before moving on to the next, the code incorporates a sequence of sleep intervals between commands. The product is to write C I M on a graph paper using the cobot.

2. ROBOT SERIAL NO: ERMC2800120230201187

3. METHOD

For this experiment we import pymycobot library to write the word “CIM” on the graph paper. Release all the servos, start at point A on your diagram, and move the robot from point to point to re-write the word using straight lines. Be sure to pick up the pen between letters and note down the robot to a position away from the paper when finished.

We have divided C I M into 11 points ranging from A to K. Once we read the coordinates of each point, we must traverse the end effector accordingly to get it written with appropriate delays. Also, try changing speeds to check if it affects the accuracy of writing.

4. CHALLENGES FACED

Linear motions can be followed by the cobot but circular ones are extremely hard to achieve. Once the setup moves, it has to be calibrated again to produce the drawing on the given space. Long delays are avoided and the distance between the next point and the previous one is to be kept small to avoid drastic deviations. Most of the time, the pen does not stay sturdily while writing the letters out.

5. MEDIA

The final video can be viewed here:
https://drive.google.com/drive/folders/1BJvwPeErqb25p1QJIdorC9zQlX82O9Vg?usp=sharing

6. CONCLUSION

In conclusion, the presented Python script demonstrates effective control of a MyCobot robotic arm using the pymycobot library to write the letters C I and M on a graph sheet. Through a sequence of carefully orchestrated joint and coordinate movements, the script showcases the precision, flexibility, and programmability of the MyCobot platform.

REFERENCES

[1] Cobot Labs, https://docs.google.com/document/d/1kWq4milBgbxbNO80HPnsYiMwxRQ8QIYt01OGePCYDU8/edit