

BTME 3072
Robotics and Automation
Lecture 8

2nd Year

III Semester

Galgotias University

2020-21

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Unit I: Introduction to Robotics

- Definition of a Robot –
- Basic Concepts –Robot configurations –
- Types of Robot drives –
- Basic robot motions –
- Point to point control –
- **Continuous path control.**

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Objectives of the lecture

- Definition of robotics basic motion Continuous path control
- Comparative study between the continuous path motion and point to point motion
- Revision

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Continuous path control

- A continuous path control system is one in which the robot is programmed to follow an irregular path exactly.
- Inside the control system, the path to be travelled is represented by a large number of points in close proximity; these points are stored in the robot's memory.
- In the working cycle, the robot follows the points to reproduce the desired path.
- The system is used for jobs when the robot is required to follow a specific path, such as in welding or painting

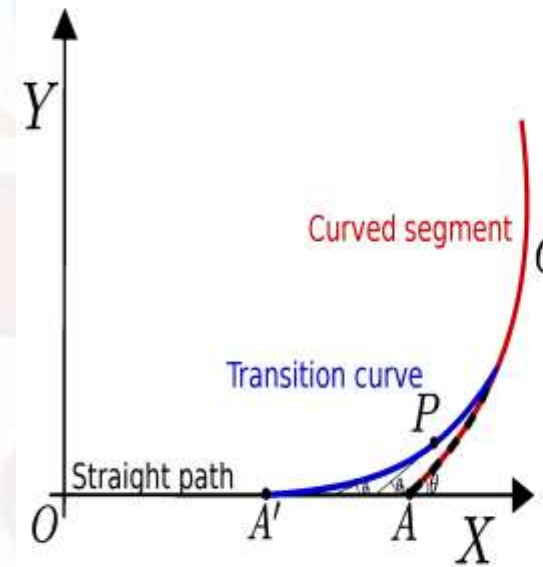
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- The continuous-path control is used when the action the robot must provide occurs at all times between points, such as spray painting, continuous cutting, continuous welding, or continuous gluing.
- Since this type of robot must follow a precise path when it's spray painting, each location in the path the robot takes to move from point to point is recorded during the programming phase of the project and replayed when the robot is in the run phase
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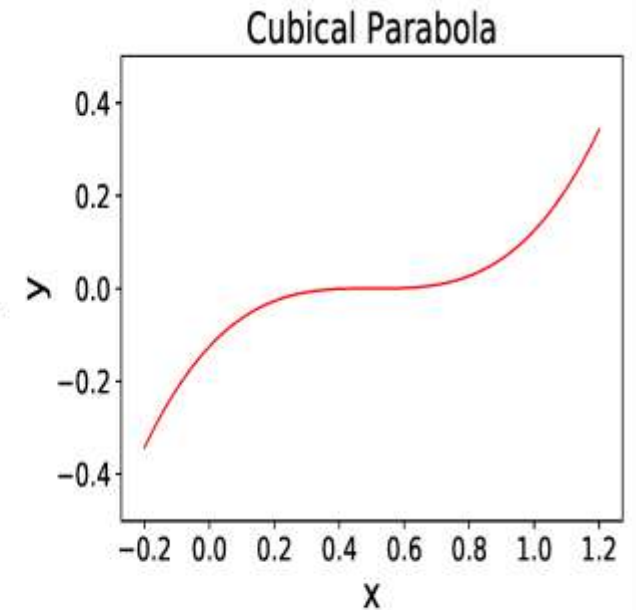
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- This type of robot is fairly easy to program because no special programming language is needed to get the robot to repeat the exact path it was taught.
- The main drawback of this type of controller is that this type of programming requires large amounts of memory to record the exact path the robot was taught as well as the speed during each part of the program.



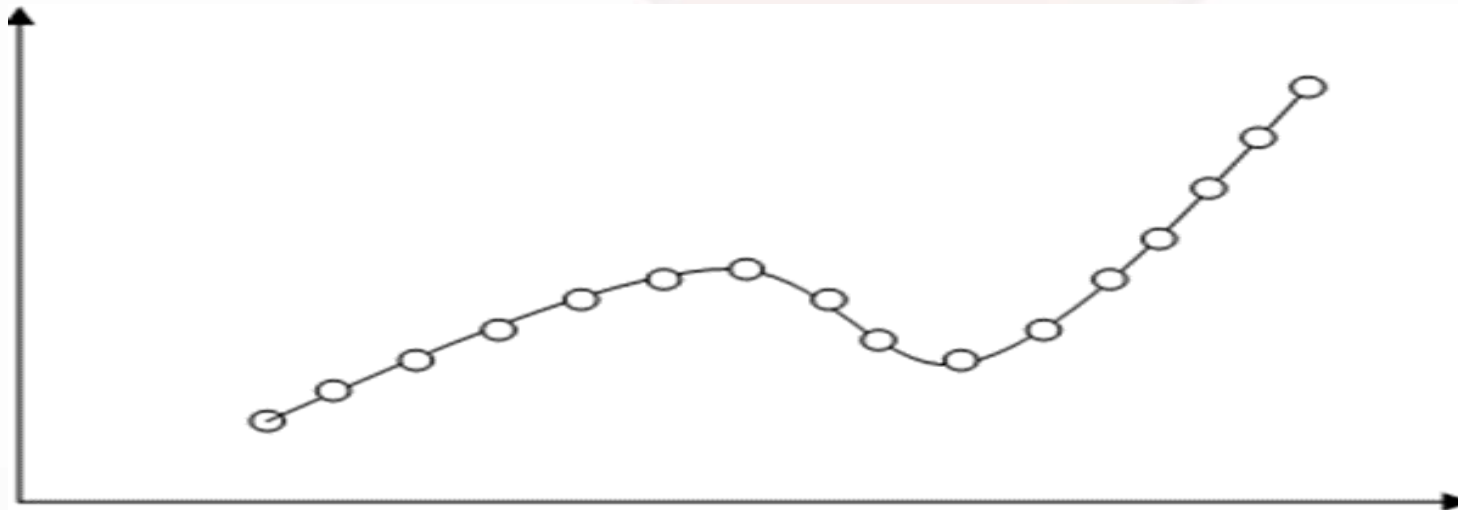
(a)



(b)

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- Because the motion path is critical for creating accurate contours, servo controllers for contouring applications typically use PID algorithms and incorporate advanced features, such as feedforward control, acceleration control, and high-speed processing capabilities.



Summery

- Continuous path motion
- Revision



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Questions

- Describe the continuous path motion.



Text books

- Introduction to robotics mechanics and control by John J Craig
- Fundamentals of Robotic Mechanical Systems by Jorge Angeles
- Robot Operating System for Absolute Beginners: Robotics Programming Made Easy by Lentin Joseph
- Reference book
 - Robotic process automation
 - Robotic Process Automation For Dummies®, NICE Special Edition

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School of Mechanical Engineering

Course Code : BTME 3072

Course Name: Robotics nad Automation

Thank You !