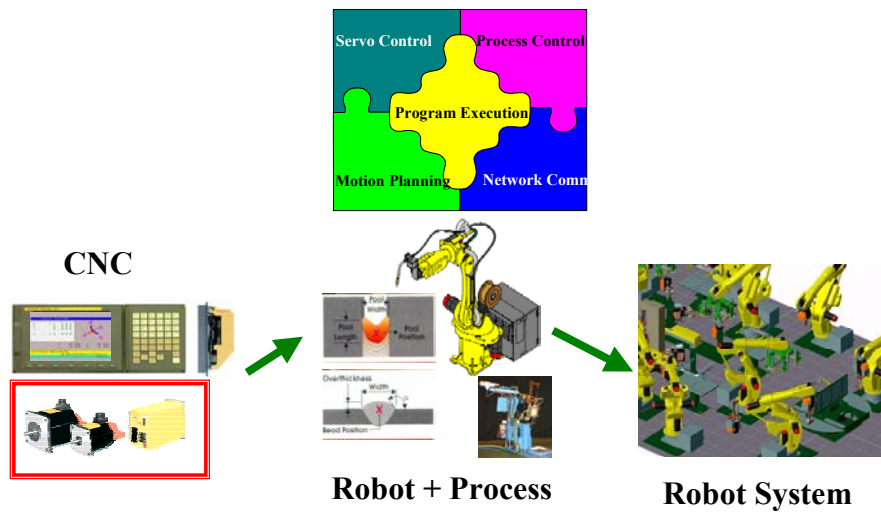
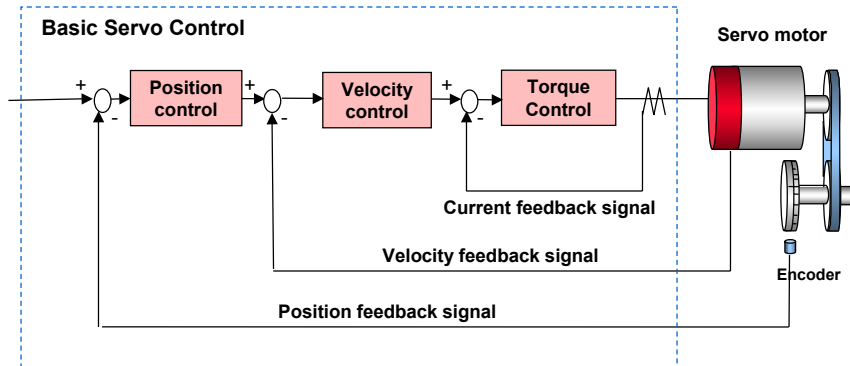


Industry Applications

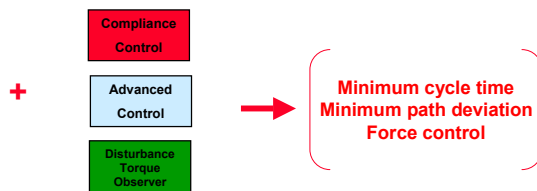
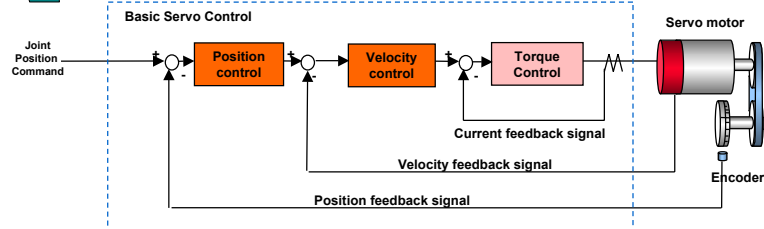
Robot Control (motion + process)



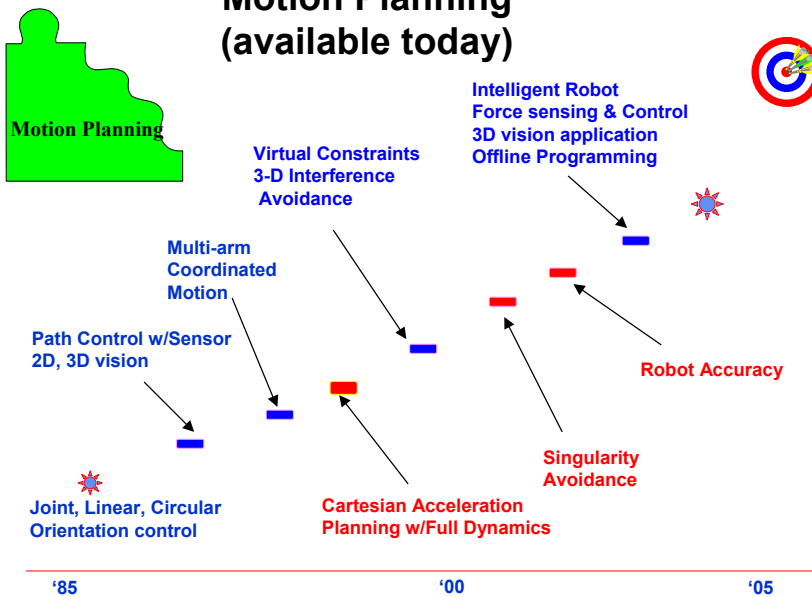
Servo Control (old)



Servo Control (now)



Motion Planning (available today)



Customer Future Needs

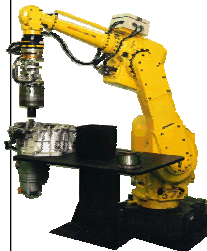
- **Lean Manufacturing**
 - Reduced floor space
 - Reduced robot teaching
 - Highly integrated process control
 - Reduced production down time
 - Safety requirement
- **Flexible Manufacturing**
 - Flexible tooling



Research & Developments to Meet Industry Needs

Intelligent Robots

Force Sensing

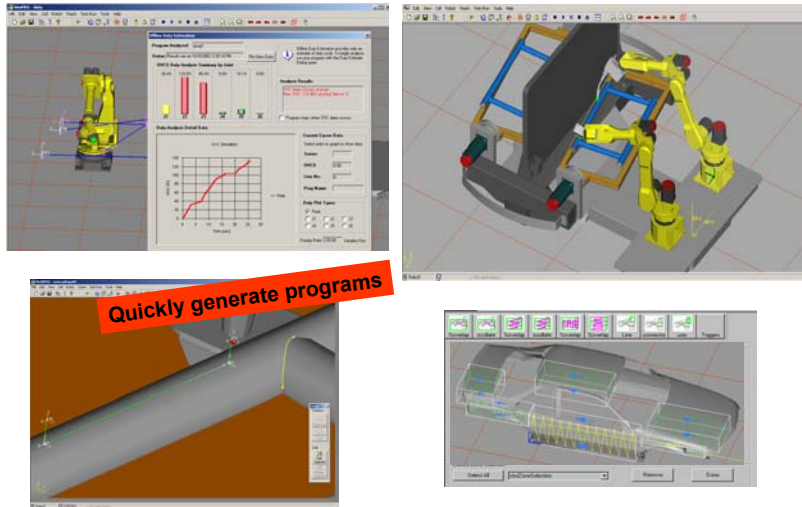


Vision 3D



High Value Applications

Offline Programming



Multi-arm Programming, Path Planning and Obstacle Avoidance



Summary

- **Future Developments**
 - Intelligent Robotics System w/ Low Cost Sensor (force sensor, 3D vision, etc)
 - Off-line Programming (high level system programming)
 - Multiple Robot Programming, Path Planning and Obstacle Avoidance
 - High Accuracy, High Speed, and Zero Vibration