Applied Computing & Engineering Ltd

Design & Manufacturing Simulation

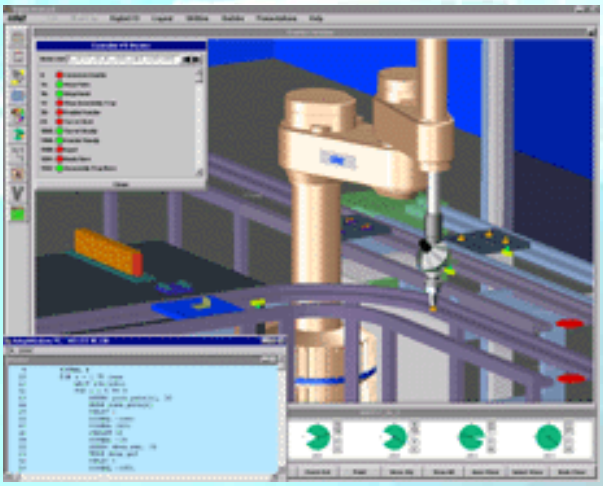
Adept Digital Workcell

Digital Workcell is a powerful 3D virtual robot and cell simulator focusing on small parts assembly and material handling applications. Using AdeptWindows PC software you now have the ability to program virtual workcells using native AIM and V+. Execute programs in real-time on the AdeptWindows Controller to drive the virtual robots and cell peripherals. Write, debug, and execute your application code without the physical robot or cell hardware. Adept's PC network solution, AdeptWindows, acts as the programming interface between Digital Workcell and the controller. Take your finished programs, without translation, to the actual robot system.

Software development productivity is greatly increased since programming and debugging can be done before or concurrent to cell assembly. Digital Workcell is integral to Adept's vision of Rapid Deployment Automation (RDA), by even further reducing the time required to implement robot systems.

Benefits of Digital Workcell Include

- Concurrent engineering of software and hardware
- Debug programs in safe virtual environment
- Increase programming productivity
- Cut software development lead times and
- time-to-market
- Valuable training tool
- High end 3D graphics
- 3D solid rendering with dynamic real-time view
- interaction.



- Point-and-click user interface
- Pull-down menus and shortcut toolbars that provide ease of use
- Complete library of current Adept robots and Linear Modules
  Output Data
- Bill of Materials
- Wiring Documentation
- Output 2D single frame and video data for Black & White and Color Postscript, HPGL/2, DXF, Applix Graphic, TIFF, JPEG, AVI and MPEG.
- Output 3D video data

Standard Features

Program virtual models of physically and kinematically accurate Adept mechanisms. The AdeptWindows controller automatically detects the virtual robot at start-up and loads the appropriate kinematics and configuration data.

Simulate V+ & AIM programs
Simulate programs written in AIM & V+ via an Ethernet connection to an AdeptWindows Controller using the AdeptWindows programming interface. The programs are executed on the controller, which drive the virtual robot and cell peripherals in the simulated environment.

Continuous Conveyor Tracking
Track parts using sensor interruption or continuous belt conveyors. Belt encoder values are passed from Digital Workcell to the V+ environment.

SmartSWAP
Exchange or swap existing items in a cell without the need to manually re-establish the component inter-dependencies (e.g. wiring, tooling, parts).

Template-cells
Use a top-down design approach by modifying generic pre-modelled workcells. Re-position components and use SmartSWAP to quickly design a specific workcell.

Digital IO Monitor
The cells' signal lines are displayed, and can be set high or low during program simulation. Monitor any or all signal lines during the programming debugging process.

Black Box Digital IO
Create completely configurable "black box" cell peripherals with assigned digital IO. Cell IO can be quickly simulated and controlled with these virtual peripherals for even more flexibility.

Robot and Linear Modules Payload Dynamics
Dynamic motor limits of robots and/or linear modules are automatically checked and if saturation occurs a V+ error message is issued.

The Adept Linear Module Planner
Use the worksheet style panel to calculate maximum accelerations, cycle times, and duty cycles for AdeptModules.

MCP Support
Connect a Manual Control Pendant to a CIP (if available) and use it to control the robot in Adept Digital Workcell. This can be an invaluable tool for MCP programming and robot operator training.

Automatic Collision Detection
Automatically identifies collisions and near misses between all or a user specified list of objects during program execution.

Robot Guided Vision Simulation
Simulates robot guided vision systems which find parts in the correct stable states (AIM only). Locations of parts in the simulation are passed to the AdeptWindows Controller in the world frame.

Parametric Peripherals
Create common tools, devices and peripherals (e.g. grippers, belt and tray conveyors, feeders, pallets, etc.) in literally minutes, by specifying the necessary parameters.

Sensor Simulation
Simulate proximity sensors which detect if parts are in its line of sight and within a specified threshold distance.

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