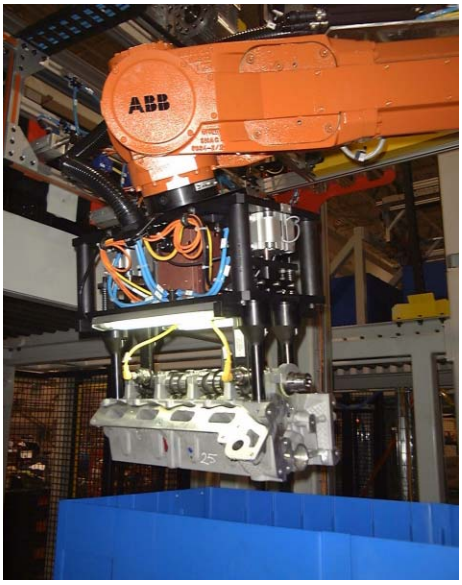
SC3D™ for Rigid Parts Transfer and Assembly

Braintech has developed this unique technology in response to demands from a major automaker for a robust 3D robot guidance system for automotive part handling applications.



In this example, Braintech SC3D technology uses a single conventional CCD video camera to guide the robot to locate and then move an engine head from the conveyor and into dunnage.

Based on the use of a single conventional CCD video camera, Braintech's SC3D technology is ideally suited for robotic handling applications involving precisely manufactured parts such as engine heads, manifolds and the like.

The SC3D algorithms use a single still image from a compact CCD video camera mounted on the robot end-effector to calculate the full 3D location of the part (i.e., x,y,z position and roll, pitch and yaw angles). This information is then transmitted to the robot controller over a high-speed communication line. The controller uses this information to guide the robot's hand and intercept each part correctly for grasping or performing other robotic processes.

Advantages of Single Camera 3D

A major advantage of Braintech's single camera system is that it circumvents the higher costs of components, installation and maintenance of more traditional stereoscopic or laser triangulation systems. Additionally, Braintech's method is fast and extremely robust, requiring only a simple calibration providing very high accuracy. As a result, Braintech can supply competitively priced and reliable systems to the rapidly growing market of integrated manufacturing robots and machine vision.

Braintech's single camera system is fast and extremely robust.

Major advantages include: compactness for end-effector integration, low-cost conventional sensor & computing platform, ease of calibration and short processing time per part.

SC3D™
SINGLE CAMERA THREE DIMENSIONAL

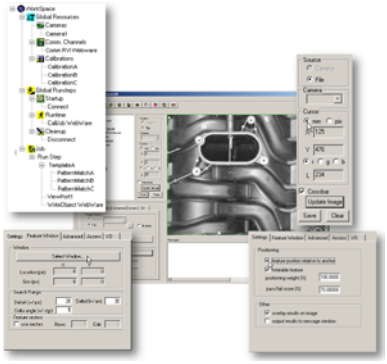
eVisionFactory™

eVF | Component | 3D Vision | Object Location Robot Guidance

Technology

Science-SC3D

Single Camera Three Dimensional is a revolutionary technology exclusively developed by Braintech for determining the 3D coordinates of rigid multi-planar parts from a single video image. Braintech originally developed SC3D in response to demand from a major auto-maker for a robust 3D robot guidance system for automotive part-handling applications. Based on the use of a single conventional CCD video camera, Braintech's SC3D technology is ideally suited for robotic applications requiring exact knowledge of the work piece's 3D coordinates.



Software–eVF™

eVisionFactory (eVF) is a component-based, integrated environment based on open standards developed by Braintech vision professionals for building and implementing robust and highly-supported VGR solutions.

Unlike other General Purpose Machine Vision tools, eVF is designed from the ground up to suit the needs and challenges of VGR. Starting with its flexible organization of every VGR project, its easily configurable tools and components, advanced robotic vision technology and online, network-enabled support, eVF paves the way for development of sophisticated and expandable VGR solutions at the manufacturing level. In short, eVF is organized to deliver:

e - Real-time Internet Support

v - Vision Science and Engineering

f - Application Development and Operation

Benefits

- Vision guidance of robots enables Adaptive Automation; the robot can deal with three-dimensional real-world variations in the position of parts and avoid costly crashes and damaged parts
- Direct labor and injury costs are reduced while quality and productivity increases
- eVisionFactory solution environment provides unprecedented flexibility & configurability to meet application's unique needs
- eVisionFactory's common intuitive user interface makes technical training transferable from one solution to the next
- Solution uses off-the-shelf standard hardware; this reduces initial cost and complexity while increasing reliability and maintainability
- Integrated real-time Internet support