

# ► iTuition graphical programming interface

SOFTWARE
► COMMON VISION BLOX
COMMON VISION BLOX TOOLS

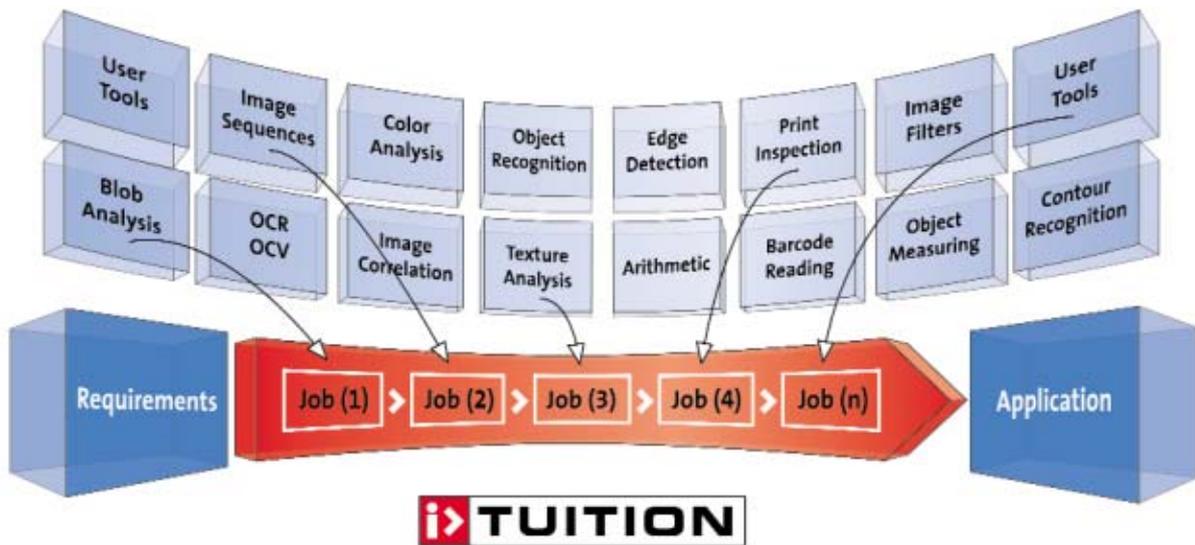
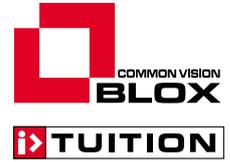
## ||||||| The fast, intuitive way to your image processing application

The iTuition graphical programming interface vastly simplifies the creation of image processing applications with Common Vision Blox (CVB). In previous versions of Common Vision Blox, the user could »only« incorporate the CVB functions via development platforms such as Visual Basic, Visual C++ (both from Microsoft) or Borland Delphi. This required experience in using the package during the familiarization phase.

By contrast, iTuition's ergonomically designed interface offers a more user-friendly graphical programming environment where programmers no longer have to struggle with the traditional pro-

gramming languages. They can drag and drop the necessary functions into their project and then parameterize them.

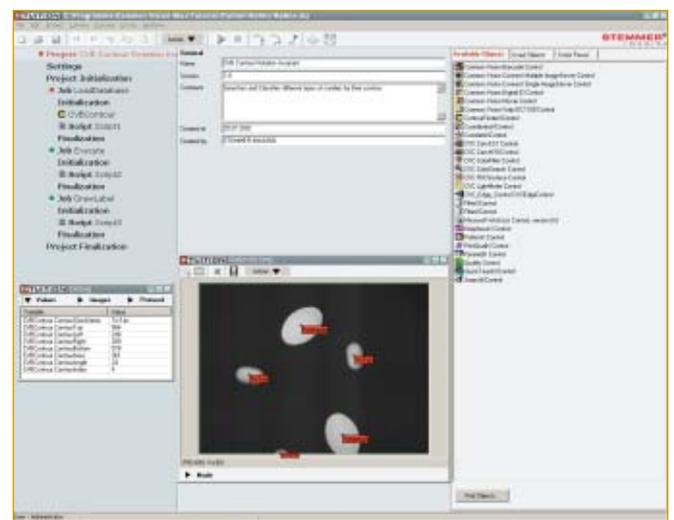
iTuition is thus the perfect tool for system integrators and OEMs wishing to conduct feasibility studies to check as quickly as possible whether an application can be solved with CVB. iTuition also makes it much easier for end customers with little experience of dealing with complex compilers to build a complete application.



## ||||||| iTuition - intuitive programming

A project generated in iTuition covers all areas of a complete application. It encompasses all necessary aspects from image capture and image display to evaluation and decision-making right through to output of the results. Every project consists of one or more tasks which correspond to subfunctions of that project. It enables definable jumps to be made to other tasks, to the calling task or to the end of the project. In contrast to many other graphical development environments, complex loops or case control can thus also be implemented.

Scripts which the users can edit are integrated as part of every project task. The script language used by iTuition is made possible by an integrated compiler. This makes a large set of individual commands available. In addition, of course, it enables all methods and properties of the controls contained in the project to be accessed.



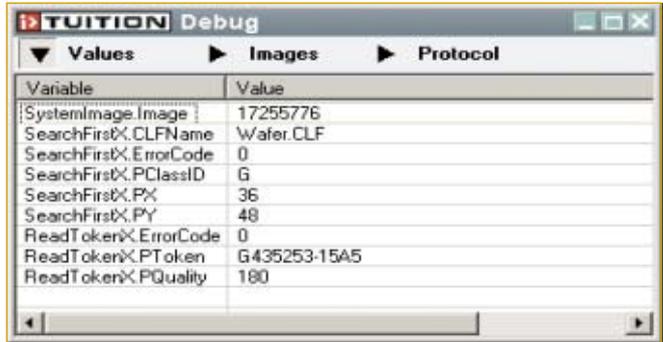
Sample application: Object recognition with CVB Contour

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## ■■■■■ iTuition, the new development environment for Common Vision Blox

iTuition is more than »just« a graphical interface: The applications created by the user are actually compiled internally. iTuition thus attains a speed comparable to that of other compilers. During programming, it is easy for the user to link in the ActiveX controls from CVB or even from third parties, and yet they can still be used flexibly. iTuition makes a comprehensive script language available for this purpose. The embedded ActiveX controls with their help system which is directly available and a parametrizable property page make programming much easier. Another programming support feature is the highlighting of syntax in the script.



iTuition's powerful development environment offers a series of useful tools for troubleshooting, such as step-by-step program execution (Step-Into, Step-Over, Run-To-Cursor), adding and removing

breakpoints, execution up to the next breakpoint, the output of current variable values or writing log files.

## ■■■■■ The iTuition interface

The structure of the interface is divided into three basic areas:



### Project area

The left-hand column shows the flow and the current status of the entire project in a clear project structure. A »project« is the complete application with its specific settings. It has an initialization and a finalization. Every project can contain one or more »tasks« as subprograms which are treated as independent objects and also include initialization and finalization. These tasks contain ActiveX controls and individual scripts.



### Work area

The middle column is used for parameterizing individual project steps and programming conditions and jump destinations. Every object in the left column has its own page for settings. Programmers can realize dynamic program execution in this area and, for instance, define status-dependent jumps between individual tasks, set status-dependent digital output channels or influence program execution by defining reactions to external digital input channels.



### Resources area

On the far right, programmers have constant access to the tools, functions and commands which are currently available for incorporation into their project. The necessary functions are simply selected from a list via CVB ActiveX controls and other ActiveX controls available on the system, then dragged and dropped into the project. The tools can be parameterized via the property pages of the controls. The available commands can also be dragged and dropped into the script.

## ||||| Highlights of iTuition

### User management

Five password-protected user levels enable authorization to be restricted, to ensure secure usage in industry.

### Switching language

The language of all menu items and text in iTuition can be altered or customized or even switched during runtime. In this way, available applications can be adapted very simply for use in regions where different languages are used.

- Languages already supported:
  - German
  - English
  - French
  - Italian
  - Spanish
  - Dutch
  - Finnish
- Simple extension and adjustment of available languages
- Switching language at runtime
- User-dependent language for login

### Licensing

Two types of license are available for iTuition:

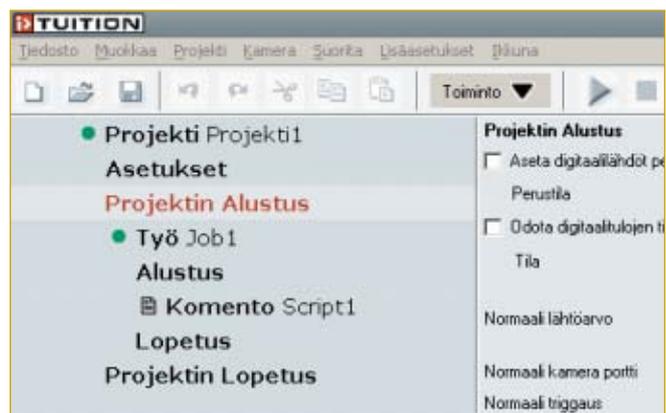
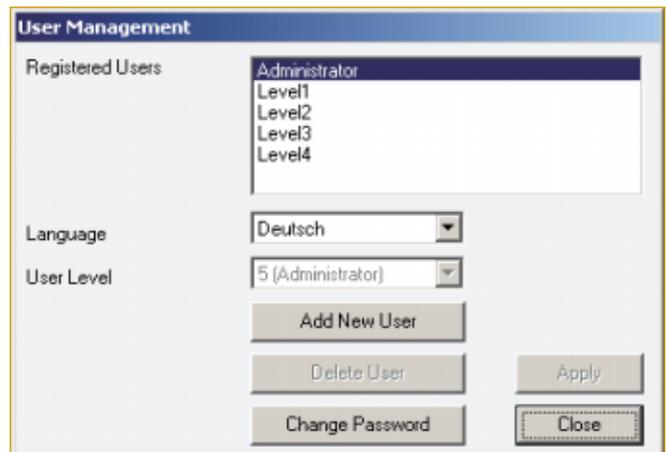
- Developer license
  - All functions/user levels active
  - Development of new applications
  - Execution of existing applications
- Runtime license
  - Component of the CVB Image Manager
  - Restricted functions/levels
  - No application development
  - Execution of existing applications

### Communication

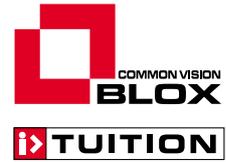
The I/O connections of the frame grabber can be used to communicate with the environment. The option of incorporating further ActiveX controls from third parties also makes communication possible with virtually any I/O device (COM port, network, PLC etc.).

### Exporting applications

- Any executable iTuition application can be imported into skeleton applications in VB, VC++ etc.
- A single skeleton application can load and execute different iTuition projects without the need to change them.
- The import is performed using an ActiveX control as a container.



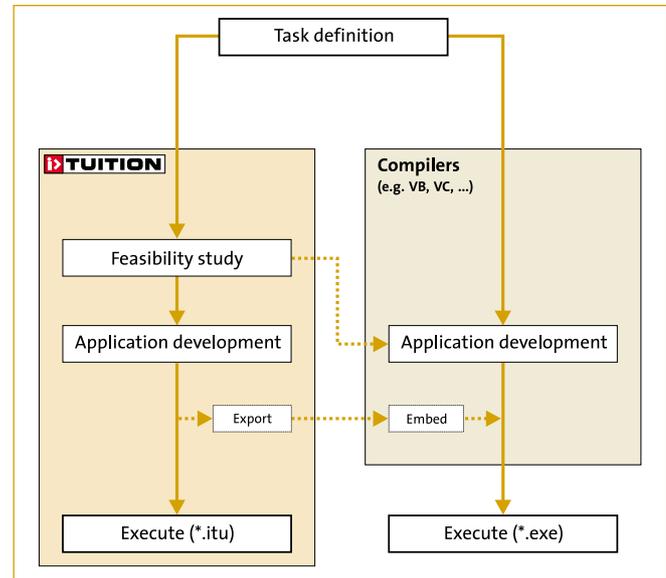
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## Fields of application for iTuition

iTuition can generally be used anywhere where industrial image processing based on CVB can support optical quality control. iTuition can not only be used purely as a development environment but also as a runtime environment. There are basically three different ways of using iTuition:

- iTuition can be used to create feasibility studies very quickly under laboratory conditions, in order to check the general feasibility of image processing tasks with CVB. In this case, users can execute and test the application directly from the iTuition development environment.
- When used in industry, iTuition applications can also run directly under the iTuition interface. The following features are extremely useful for this case:
  - Every registered user is given a password-protected user level by the administrator.
  - When users log on, iTuition switches directly to their preferred language.
  - The image processing application can be started in iTuition from a command line.
- An option of particular interest to application houses is the facility to export iTuition projects which have been created and incorporate them in a separate skeleton application, e.g. in Visual Basic. This procedure minimizes the cost of development for image processing applications without adversely affecting Common Vision Blox's usual standards of flexibility and performance.



Of course, using a new programming environment does not mean dispensing with precise knowledge of the algorithms used and the fundamentals of image processing. This knowledge is also offered by reliable application houses if users do not wish to develop this knowledge themselves. In case of interest, please contact your Common Vision Blox distributor.



Top-quality image processing software.

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[www.stemmer-imaging.de](http://www.stemmer-imaging.de)

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