

APPLICATION SPECIFIC MACHINE VISION E-BOOK

Machine Vision (combination of camera and processing technologies) is the **NEED of the HOUR** in manufacturing and production industries to improve quality and throughput with measurable return on investment.

Machine Vision e-book from **ONLINE SOLUTIONS (IMAGING) PVT. LTD.,** Chennai India is designed to provide the *Practical approach to learn MACHINE VISION concepts towards applications in demand in the industry with the company's experience gained in more than two decades of solution selling in the field of Imaging and Vision.*

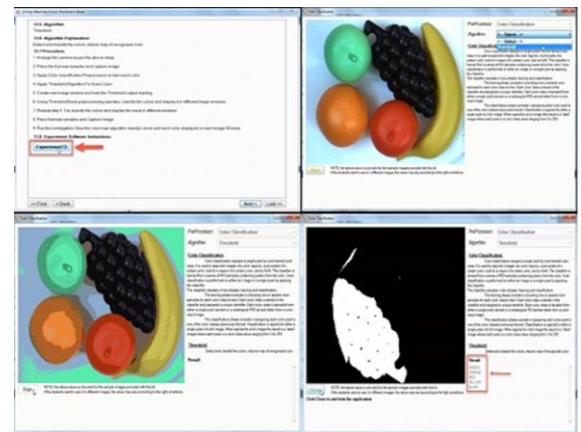
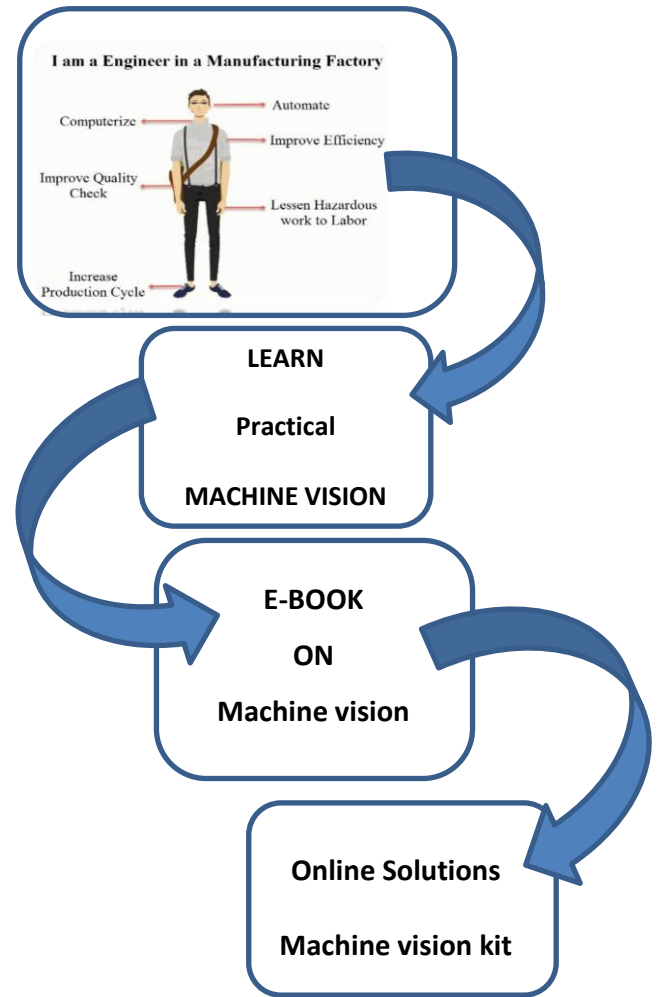
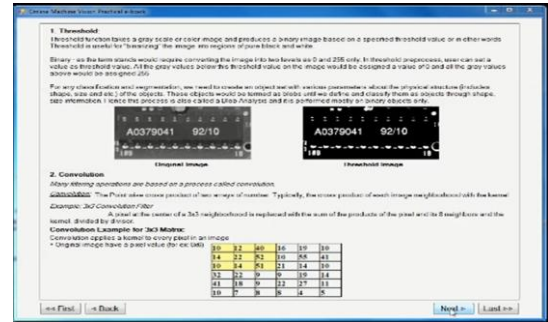
The *e-book* is designed

- with a view to provide an overall experience of designing and using a **machine vision** system (need of the hour) towards different Industrial application projects
- to give professional **Practical understanding** on machine vision to academy and industry.
- to provide knowledge on all concepts like **Cameras, Optics, hardware, software, application tasks** and the related processing and algorithm usage flow.

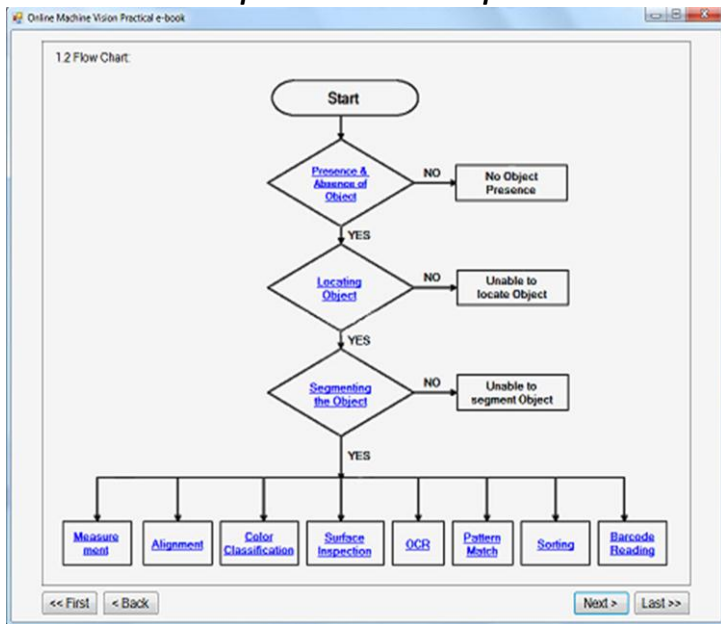
This e-book is interactive with theory and practical session for every machine vision concept on development and practical implementation.

Each chapter has theory that explains the aim, Pre stored images to program and implement the Machine vision solution, Programming Flow with Pre-processing and algorithm explained in brief and in detail in separate chapters that can be accessed through hyperlinks as ready reference.

End of the chapter has an experiment icon which will take the reader to the programming session with interactive menus and explanations of the steps followed. A RUN button can be enabled at End of the experiment to check the effect of the program and the output on other stored images. Hence the session would give a better hands-on experience on Machine vision tasks on a desktop.



"The experiments would bring a feel of Industry experience on Desktop."



Flow Chart of machine vision processes

"Learn, Understand, Practice - the concepts of Machine Vision on your Desktop"

Benefits of this e-book:

- ✚ On Field applications based tutorials
- ✚ Programming flow process
- ✚ Algorithms recommended and explained specific to Machine Vision tasks
- ✚ Hyperlinks to all help and theory
- ✚ ideal for institutions and also industry

"Online Solutions also provide "Online Machine vision kits" to setup labs following this e-book to try in real time and deploy projects in the field."

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Presence & Absence

Find the presence and absence of objects.



Locating Objects (Object of interest)

Locate the object in the Field of View



Segmenting Objects (Object of interest)

Detecting the object type and find the number of objects.



Alignment



Surface Inspection

Find scratches and cracks on the surface of the object



Optical Character Recognition (OCR)

Check orientation and read & display the characters printed on the Chip.



Pattern Matching

To determine whether the manufactured components same as the template flaw less object.



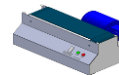
Sorting

Sort out the odd parts (other than one considered as the right part) based on shape info.



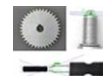
Barcode

Read different types of BARCODE – Decode the data or info from the BARCODES.



External I/O

Send Data from Machine Vision System to another device for communication.



Measurement

Perform accurate measurement to see if components are positioned at proper distance & position.



Color Classification

To learn and classify object based on color and apply morphology on thresholded images

