



**PRODUCT NAME :** 15 Days Machine Vision with Matlab Distance Learning Kit

**PRICE :** Rs 6,900.00  
**SKU :** RM1510



## DESCRIPTION

### OVERVIEW:

This Program mainly focuses on the Individuals eager to learn machine vision with matlab from Basic through Distance Education. They will get the chance to expand their knowledge in the field of Designing, Operation, and Application of machine vision with matlab with real time hand on practical experience. The duration of this module is 15 days. After completion of the Learning Section the Individual have to give examination on any working day within 3 Months, prior he/she has to lock the Examination Date within 2 days of completion of Learning Section. On successful completion of the Program Individual will be provided with Certificate of Distance Learning Program certified by Robosapiens Technologies Pvt. Ltd.

- 1.Duration: 15 Days
- 2. Best Suited For: Individual Eager to Machine Vision with Matlab\*
- 3.Fees: 6900/- (Including Courier Charge)
- 4. Project: 49 Experiments cum Projects
- 5.Training Kit: Robosapiens DLK (For details view KIT Tab)
- 6. Delivery: DLK will be delivered to you in 5 working days after receiving your payment
- 7.Examination: You can give exam on any working day within 3 Months #
- 8. Certification: DLC from Robosapiens Technologies Pvt. Ltd.

## **Course:**

### **Day 1:**

#### **Introduction to Matlab**

- Matlab Environment
- OPEN and WORK with Matlab
- Command's in Command Window
- Workspace
- Command History

#### **Introduction To Matrix**

- Matrix Command
- Matrix Operators
- Creating a M-File
- Debugging of M-File
- Plotting Function's

**Example 1:**Plotting of sine wave.

**Example 2:**Plotting of sine and cos wave

**Example 3:**Plotting of 4X4 matrix

### **Day 2:**

#### **Introduction To Image Processing Toolbox**

- Semiconductor Memories
- Types of Images
- Image Arithmetic
- Displaying Images
- Basic Image Related Function's
- Spatial Transformation
- Resizing and Roating
- Image Cropping
- Noise and Filter
- Dilation and Erosion

- Edge Detection

**Example 4:**Showing of Image

**Example 5:**Colormapping of Image

**Example 6:**Resizing of Image

**Example 7:**Rotating of Image

**Example 8:**Cropping of Image

## **Day 3:**

### **Introduction to Robotics**

- Three Laws Of Robotics
- Components Of Robotic Systems
- Types Of Robots
- Future Of Robotics

### **Introduction to Basic of Electronics**

- Charge
- Voltage
- Batteries
- Types Of Components
- Introduction To Digital Electronics

### **Introduction To Embedded Systems**

- Introduction To Computer Architecture
- Introduction To Microprocessors
- Introduction To Microcontroller
- Introduction To Avr Microcontrollers
- Introduction To Avr Atmega16
- Pin Out Diagram Of Atmega16
- Pin Descriptions
- I/O Ports Of Atmega16

## **Day 4:**

### **Installation of Software and Debugging**

- Robosapiens Boot Flasher
- Installation Of Softwares
- Installation Steps Of Winavr
- Installation Steps Of Avr Studio 4.0
- How To Work With Avr Studio 4
- Writing your First 'Embedded C' Program in AVR Studio
- Program Compilation and Debugging
- Loading Compiled 'C' Program into Microcontroller using Robosapiens 'AVR BOOTFlasher v1.0 Beta'
- Types Of Motors
- Controlling Circuit
- DC Motor Interfacing With Atmega8

**Example 9:**LEDs Blinking

**Example 10:**Dancing Led Pattern

**Example 11:**Curtain led Effect

**Example 12:**Counter on LEDs

**Project 1:**LEDs ON and OFF

**Project 2:**Sand Glass Filling of LED

**Project 3:**Decoration of LED Patterns

**Project 4:**DC Motor Driving

## **Day 5:**

### **Introduction To LCD Display**

- Liquid Crystal Display (LCD'S)
- 16 X 2 Lcd Display
- Pin Diagram Of 16x2 LCD
- Important Commands Codes For LCD

**Project 5:**Display Text on LCD

**Project 6:**Blinking Text on LCD

## **Day 6:**

### **Introduction To USART**

- Type of Communication
- Different type of Communication Protocol
- Interface of PC to Microcontroller
- Baud Rate generation
- Serial Data Communication And Parallel Data Communication
- Use of TTL

### **Project 7:Data Transfer using Serial Communication**

## **Day 7:**

### **Introduction to Image Acquisition Toolbox**

- Know Video Adaptor
- Capture storing real time data
- Graphical User inter Face (GUI)
- Open and run the GUIDE simple (GUI)

### **Project 8:Show the text with Matlab**

### **Project 9:Object Detection**

## **Day 8:**

### **Introduction to If-else statement**

- Decision Statement
- Switch Statement
- If Statements
- Nested If else

### **Example 13:Use of if statement**

### **Example 14:Use of if-else statement**

**Example 15:**Number matching using if-else condition

**Example 16:**Use of nested if statement

**Example 17:**Use of Switch Case statement

## **Day 9:**

### **Introduction to Control Statement**

- While statement
- For loop statement
- Nested loop control
- Break statement

**Example 18:**Use of While loop

**Example 19:**Use of For loop

**Example 20:**Display Array Elements Using For Loop

**Example 21:**Detection of Prime Number

**Example 22:**Use of Break statement

## **Day 10:**

### **Introduction to Transforms**

- Laplace Transform
- Fourier Transform
- Inverse Laplace Transform
- Inverse Fourier Transform

**Example 23:**Computation of Laplace Transform

**Example 24:**Function of Inverse Laplace

**Example 25:**Computation of Fourier Transform

## **Day 11**

### **Keyboard Controlled Robot**

- Introduction
- Serial Port Communication
- Keyboard Programming
- Serial Port Output on X-CTU

### **Project 10:Keyboard Controlled Robot**

## **Day 12**

### **Advance Graphical User Interface**

- Introduction
- HOW does a GUI work?
- GUI Building Basics
- GUI Functions
- GUIDE Tool Summary
- GUI Working

### **Project 11:Temperature Converter using GUI**

### **Project 12:Basic Calculator using MATLAB (GUI)**

### **Project 13:Browsing Image using GUI**

### **Project 14:GUI Switch Controlled Robot**

## **Day 13**

### **Image Color Segmentation**

- Image Segmentation
- Segmentation Method in Image Processing & Analysis
- Otsu's Method

- Marker Controlled Watershed Method

**Project 15:**Pixel Reading of Image

**Project 16:**Adding Noise in Image

**Project 17:**Image Transformation

**Project 18:**Blur an Image

**Project 19:**Image Segmentation using GUI

**Project 20:**Red Object Detection

## **Day 14**

### **Audio Recorder**

- Introduction
- Creating an audio recorder Object
- Audiorecorder
- Recording an Audio
- Extracting DATA

**Example 26:**Configuring Audio Recorder

**Project 21:**Audio Recorder

## **Day 15**

### **Simulink**

- Introduction to Simulink
- Using Simulink
- Building Models

**Example 27:**Sine Wave Output

**Example 28:**How to add gain in Simulink Model



## Project Covered:

- Plotting of sine-wave
- Plotting of sine and cos wave
- Plotting of 4X4 matrix/li>
- Showing of Image
- Colormapping of Image
- Resizing of Image
- Rotating of Image
- Cropping of Image
- LEDs Blinking
- Dancing Led Pattern
- Curtain led Effect
- Counter on LEDs
- LEDs ON and OFF
- Sand Glass Filling of LED
- Decoration of LED Patterns
- DC Motor Driving
- Display Text on LCD
- Blinking Text on LCD
- Transfer using Serial Communication
- Show the text with Matlab
- Object Detection
- Use of if statement
- Use of if-else statement
- Number matching using if-else condition
- Use of nested if statement
- Use of Switch Case statement
- Use of While loop
- Use of For loop
- Display Array Elements Using For Loop
- Detection of Prime Number
- Use of Break statement
- Computation of Laplace Transform
- Function of Inverse Laplace
- Computation of Fourier Transform
- Keyboard Controlled Robot
- Temperature Converter using GUI

- Basic Calculator using MATLAB (GUI)
- GUI Switch Controlled Robot
- Pixel Reading of Image
- Browsing Image using GUI
- Adding Noise in Image
- Image Transformation
- Blur an Image
- Image Segmentation using GUI
- Red Object Detection
- Configuring Audio Recorder
- Audio Recorder
- Sine Wave Output
- How to add gain in Simulink Model

### **Kit Content:**

- 2 X Booklet with step by step Instructions(Vol 1-Vol 2)
- 2 X Tool Kit CD(Vol 1-Vol 2)
- Robosapiens Atmega16 mini Robotics Development Board V4.0
- ATmega16 with inbuilt Robosapiens Bootloader
- USB Connector Cable
- High Quality Plastic Chassis Board
- Screw driver
- Ball Caster wheel
- Robosapiens TTL
- 16x2 LCD
- Support Studs
- 4X Single pin Female to Female Jumper wire
- 8 pin Female to Female Jumper wire
- 2X 4pin Female to Female Jumper wire
- 1 Pair wheel 76mm Diameter
- 1 Pair D.C Plastic gear motors
- Other required Tools and accessories etc

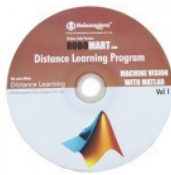
## ADDITIONAL IMAGES

**ROBOMART.com™**



**ROBOMART.com™**

Tool Kit CD



**ROBOMART.com™**

4 pin Female to Female Jumper wire



**ROBOMART.com™**

CHASSIS BOARD



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TOOLKIT CD



**ROBOMART.com™**

8 Pin Female To Female Jumper Wire



**ROBOMART.com™**

1 Pair D.C Plastic gear motors



**ROBOMART.com™**

Screw Driver



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**Support Studs**



**ROBOMART.com™**

**Robosapiens TTL**



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**Caster Wheel**



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**Single pin Female to Female Jumper wire**



**ROBOMART.com™**

**USB CONNECTOR CABLE**



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**1 Pair Wheel**



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