



PRODUCT NAME : 15 Days Robotics with ATMEGA AVR Distance Learning Kit

PRICE : Rs 6,900.00

SKU : RM1509

DESCRIPTION



OVERVIEW:

This Program mainly focuses on the Individuals eager to learn Robotics from Basic through Distance Education. They will get the chance to expand their knowledge in the field of Designing, Construction, Operation, and Application of Robot 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 Learn Robotics *
- 3. Fees: 6900/- (Including Courier Charge)
- 4. Project: 36 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 Robotics

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

Introduction To Basic of Electronics

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

Day 2:

Introduction To Embedded Systems

- Semiconductor Memories
- Semiconductor Memory Technologies
- Flipflops
- Introduction To Computer Architecture
- Introduction To Microprocessors
- Introduction To Microcontroller
- Introduction To AVR Microcontrollers
- Introduction To AVR ATMEGA 16
- Pin Out Diagram Of AVR ATMEGA 16
- Pin Descriptions
- I/O Ports Of ATMEGA16

Day 3:

Installation of Software and Debugging

- Review Of Tool Chain Used To Design An Embedded System
- Integrated Development Environment (IDE)
- Compiler
- Robosapiens Boot Flasher
- Installation Of Softwares
- Installation Steps Of Winavr
- Installation Steps Of Avr Studio 4.0
- How To Work With Avr Studio 4.0
- 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'

Experiment 1:Turning Buzzer ON/OFF

Experiment 2:LEDs Blinking

Experiment 3:Running of LEDs

Experiment 4:Sand Glass Filling of LEDs

Day 4:

Introduction To Display Devices

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

Experiment 5:Display Text on LCD

Experiment 6:Blinking Text on LCD

Experiment 7:Cursor Type Demo on LCD

Experiment 8:Scrolling Text on LCD

Experiment 9:Counter using LCD

Day 5:

Introduction to Transducers

- Introduction To Sensors
- Infrared (IR) Sensor

- Sound Sensor
- Light Sensor
- Dtmf (Dual Tone Multiple Frequency)

Experiment 10:IR sensor interfacing

Experiment 11:Sound Sensor interfacing

Experiment 12:Light Sensor Interfacing

Experiment 13:Dtmf (Dual Tone Multiple Frequency) Interfacing

Day 6:

Introduction of Motores

- Types of motors
- Controlling circuit
- DC Motor Interfacing With Atmega16

Experiment 14:DC Motor Testing

Experiment 15:DC motor controlling with IR Sensor

Day 7:

- Project 1: Black Line Follower Robot
- Project 2: White Line Follower Robot
- Project 3: Edge Avoider Robot
- Project 4: Wall Follower Robot
- Project 5: DTMF Controlled Robot
- Project 6: Light Searching Robot
- Project 7: Start on Clap Robot
- Project 8: Stop on Clap Robot
- Project 9: Start and Stop on Clap Robot
- Project 10: Obstacle Avoider Robot

Day 8:

Introduction To Timer

- Basic Registers of Timers
- Timer 0
- Timer 1
- Timer 2

Day 9:

Introduction To PWM(Pulse Width Modulation)

- Duty Cycle
- PWM Signal Generation by Using AVR Timers
- Fast PWM Mode
- Phase Correct PWM

Experiment 16:PWM on LED

Day 10:

Introduction To PWM(Pulse Width Modulation)

- Hardware Interrupt
- Software Interrupt
- Interrupt Vs Polling
- Interrupt Service Routine
- Interrupt Programming

Day 11:

Introduction To ADC(Analog To Digital Convertor)

- Analog and Digital Signals
- Registers for ADC Programming
- Successive Approximation ADC
- Temperature Sensors(LM35)

Experiment 17:ADC testing using Temperature Sensors (LM35)

Project 11:Temperature Control Robot

Day 12:

Introduction To Ultra-sonic Transducers

- Working principle of Ultra-sonic
- HC SR -04 module
- Connection of HC SR-04 with Atmega16 Board

Project 12:Distance Calculator

Day 13:

Introduction To LDR And RGB LED

- Types of LDR
- Working principle of LDR
- Use of LDR with RGB LED

Experiment 18:Light Detection Robot (LDR)

Experiment 19: RGB Led Interface

Project 13:Color Detection Robot

Day 14:

Introduction To Stepper Motor And Joystick

- Types of Stepper Motor
- Working principle of Stepper Motor
- Working principle of Joystick

Experiment 20: Stepper Motor Testing

Experiment 21: Joystick Interface

Project 14: Joystick Control Robot

Day 15:

Introduction To Accelerometer

- Principal of Accelerometer
- Adxl355
- Application

Project 15: Gesture controlled robot

Project Covered:

- LEDs Blinking
- Turning Buzzer ON/OFF
- Running of LEDs
- Sand Glass Filling of LEDs
- Scrolling Text on LCD
- Display Text on LCD

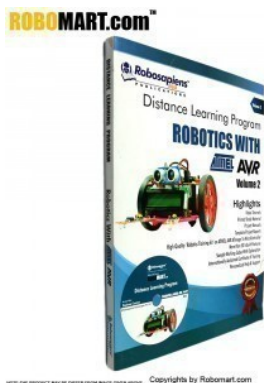
- Blinking Text on LCD
- Counter using LCD
- Cursor Type Demo on LCD
- IR sensor Interfacing
- Sound Sensor Interfacing
- Light Sensor Interfacing
- Dtmf (Dual Tone Multiple Frequency) Interfacing
- DC Motor Testing
- DC Motor controlling with IR Sensor
- Black Line Follower Robot
- White Line Follower Robot
- Edge Avoider Robot
- Obstacle Avoider Robot
- Wall Follower Robot
- DTMF Controlled Robot
- Light Searching Robot
- Start on Clap Robot
- Stop on Clap Robot
- Start and Stop on Clap Robot
- PWM on LED
- ADC testing using Temperature Sensors (LM35)
- Temperature Control Robot
- Distance Calculator
- Light Detection Robot (LDR)
- RGB Led Interface
- Color Detection Robot
- Stepper Motor Testing
- Joystick Interface
- Joystick Control Robot
- Gesture controlled robot

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
- IR Based Digital Sensors
- Sound Sensor
- DTMF Decoder Module
- Light Sensor
- Support Studs
- 16x2 LCD
- 1 Pair wheel 76mm Diameter
- 1 Pair D.C Plastic gear motors
- Temperature Sensor
- Accelerometer
- Ultrasonic Sensor
- Stepper Motor
- Joystick module
- RGB Led Module
- Light Sensor (LDR Small)
- 6 X Single PIN Female to Female Jumper Wire
- 1 X 4 Pin Female to Female
- 1 X 8 Pin Female to Female
- Sensor Extension Strip
- Other required Tools and accessories etc.

ADDITIONAL IMAGES



ROBOMART.com™

Tool Kit CD



ROBOMART.com™

USB CONNECTOR CABLE



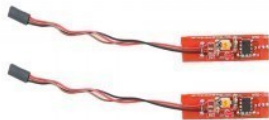
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Screw Driver



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IR Based Digital Sensors



ROBOMART.com™

LIGHT SENSOR



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Robosapiens Atmega16 Mini Robotics Development Board V4.0



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CHASSIS BOARD



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Caster Wheel



ROBOMART.com™

DTMF Decoder Module



ROBOMART.com™

Support Studs



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1 Pair Wheel



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Temperature Sensor Module



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Ultrasonic Sensor



ROBOMART.com™

Joystick module



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LIGHT SENSOR (LDR SMALL)



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1 Pair D.C Plastic gear motors



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ACCELEROMETER



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Stepper Motor



ROBOMART.com™

RGB Led Module



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Single PIN Female to Female Jumper Wire



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Sensor Extension
Strip



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Tool Kit CD



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