

Course Content: IoT and ML Training

- Online video training on the Internet of Things and Machine Learning
- Learn to build IoT and ML projects.
- Excellent for those who want to start with IoT and ML because it teaches you to build projects from the basics.
- Certification will be offered upon completion of the training.

Duration:

- If you spend 1.5 hours each day on the training then we expect you to complete it in 45 days time.
- However, do note that it is self-paced and you can complete it as per your convenience. You will have **lifetime access to the content**.
- The certificate will be offered irrespective of the time when you complete the training.

To register visit <https://shop.boltiot.com>

Click here to register

About the IoT & ML training course

The IoT & ML online training course by Bolt is a 4 weeks training program in the field of electronics, web applications, autonomous control of devices over the Internet, home automation and use of machine learning with IoT. This training will give you extensive insight into the world of the Internet of Things and Machine Learning.

As you progress through the training you will build 14 different projects. Few of these projects are:

- An environment monitoring system, which can sense the light intensity in a room and also visualize the data in the form of a graph. Can be used to monitor the light received by plants in a greenhouse or even at your home.
- Home Automation System where you can control the lights in the house over a Smartphone app.
- An Industrial Temperature monitoring and alert system that sends alerts over SMS and E-Mail in case the temperature crosses a threshold. This product is used in Industries like Pharmaceutical, Chemical Manufacturing etc.
- Post automated Facebook, Twitter and Instagram posts when the temperature a physical device takes an action e.g. Fridge door opened, pollution in an area is too high etc.
- Data prediction using Machine learning. We will teach you the Polyfit algorithm that can predict the temperature values in advance and alert even before any tragedy occurs.
- Anomaly detection using Machine learning to automatically and intelligently identify when it is the time to repair a machine.

You may also choose your own problem statement for the projects, for which we will be glad to provide support over the forum.

Course Content in Brief

1. Building an IoT Monitoring System: You will learn the key concepts of IoT and Bolt Cloud and also build your first IoT project

- Introduction
- History of IoT
- Introduction to the IoT platform

- Electronic terminologies
- Technical specifications of Bolt
- Preparation for future modules of the training
- Getting started
- **Project 1:** Building your first IoT sensor project: Interfacing LDR with WiFi Module and storing the data on the cloud.
- Data visualisation
- Data visualisation over Google library
- Assignment

2. Controlling Devices Over the Internet and Home Automation: You will learn about HTML and Javascript and how to interface different sensors with the Bolt device.

- Programming in HTML
 - Introduction
 - HTML tags
 - HTML Document Structure
 - Creating your first webpage
 - Body tags
 - Embedding images
 - HTML hyperlinks
 - Div and headings tags
 - Table
- Programming in JavaScript
 - Introduction
 - Variables
 - Creating your functions
 - Manipulating HTML content using JavaScript
 - Built-in JavaScript functions
 - Asynchronous Javascript
- APIs on Bolt
- Home Automation: Controlling devices over the Bolt
 - **Project 2:** Controlling LED over Bolt Cloud
 - **Project 3:** Controlling Buzzer over Bolt Cloud

- Assignment
 - **Project 4:** Custom visualizations and buzzer control

3. Cloud, APIs, and Alerts: You will learn the basics of Cloud and Linux concepts. Basics of Python will also be taught and you will be able to build systems that can gather data and send you SMS/Email alerts
VPS (Virtual Private Server)

- Introduction to Linux
 - Structure of operating systems
 - Interesting facts about Linux
 - Basic Linux commands
 - What is sudo
 - Easter eggs in Linux
- Programming in Python
 - Introduction
 - Hello world program
 - Indentation of code
 - Debugging
 - Arithmetics
 - Variables
 - Conditional statements
 - While loop
 - For loop
 - Random function
- Bolt Python Library
 - **Project 5:** Checking Bolt module status using Python program
 - **Project 6:** Restarting Bolt module using Python program
- Interfacing Sensor over VPS (Virtual Private Server)
 - **Project 7:** Sending an SMS alert using Python program when temperature crosses the threshold
 - **Project 8:** Sending an email alert using Python program when temperature crosses the threshold

- Social Media of Things
 - **Project 9:** Posting a Tweet on Twitter using Python program when temperature crosses the threshold
- Assignment
 - **Project 10:** Bitcoin price alerting system

4. Machine Learning: You will learn the basics concepts of Machine Learning. How to use polynomial regression on the Bolt Cloud to predict the next data set, and how to implement an Anomaly Detection algorithm for sending alerts when something is amiss.

- Introduction to Machine Learning.
- Introduction to Prediction
- Polynomial Regression
 - **Project 11:** Temperature prediction system
- Anomaly detection
- Z-Score analysis
 - **Project 12:** Ambient light anomaly detection system
- Assignment
 - **Project 13:** Ambient light anomaly detection system integrated with Facebook

5. Capstone project: This is a major project that can also be submitted as final year engineering project. Here you will apply all the learnings of the 4 modules to build the project. We will be more than happy and guide you.

- Industrial temperature monitoring and alerting system. The system will send alerts when the temperature crosses the set thresholds. It will also integrate the anomaly detection technique.

Kit Contents

The Kit is worth INR 2,750/- and includes the following components:

1. Bolt WiFi Module
2. Bolt Cloud
3. Bolt Smartphone App
4. USB Cable
5. Temperature Sensor
6. Light Sensor
7. Push Button Switch
8. LED X 2
9. Buzzer
10. Resistor X 2
11. Assorted Connecting Wires
12. Breadboard

Warranty: All the components are covered under 1-year replacement warranty from the date of delivery of the kit.

Frequently Asked Questions

1. What is this IoT and ML training program about?

This training is about the automation, web application and interface between hardware and software. We shall cover all concepts from the basics and take you to an advanced level.

2. What if I have doubts and queries?

Our team will offer support over an online forum as well as over E-Mail. In case required, we also answer queries over phone or video call.

3. What is the duration of this training?

If you spend 1.5 hours each day on the training then we expect you to complete it in 45 days time.

However, there is no deadline to finish the training. It is self-paced and you can complete it as per your convenience. You will have lifetime access to the content.

4. Will a hardware kit be provided?

Yes, a hardware kit will be delivered to your address so as to enable you to build the projects as taught in the training course.

5. What are the timings of this training program?

This is an online training program. You can choose to learn at any time of the day according to your convenience.

6. Who can join? I am a beginner/advanced user, is this IoT training program for me?

Anyone with an interest in the Internet of things and machine learning (College students (every stream and year) & Working Professionals) is encouraged to join this program. Please note that this is a beginner level training. Using this training, you will be able to build real-life complex IoT systems on your own.

7. Are there any prerequisites for joining this program?

This program is for beginners. There are no prerequisites. We only ask that you are willing to learn programming and computer systems concepts.

8. What are the benefits of joining this training program?

- The Internet of Things (IoT) and Machine Learning are one of the most technologies. Some of the highest paying jobs today are offered to the ones who pursue a career in these two technologies.

- Apart from learning more about the Internet of things, you will also learn to apply many concepts that you have learnt so far in college in practical life.
- You will also learn and practice computer programming languages like HTML, Python and learn about designing electronics circuit on your own thereby getting hands-on with hardware and software programming related to IoT.
- This course is also ideal for the ones who want to build their final year project in the field of IoT or ML.

9. What software will be required during this training?

All the necessary software are uploaded online which can be downloaded during training. We provide support for Windows, Mac and Linux.

10. Will there be any project that I will get to work on?

Yes. You will receive a hardware kit and use this to build the IoT projects as demonstrated in this course. The kit will be delivered to your address.

11. Will there be a certificate provided at the end of the training?

Yes, we will provide a certificate upon completion of the training. Students may download a soft copy of the certificate through our portal.

12. How do I register and join the training?

You can register and join the training at shop.bolttiot.com

13. Can the material be used by a group of students?

No. These training programs are meant for individual users. Multiple users will not be allowed to access the portal using the same account. Also, only one certificate will be awarded at the end of the training. This helps us ensure that every student gets the optimum learning and knowledge at the end of the training.

Click here to register

If you have any queries or doubts regarding the training, please write to us at support@boltiot.com or call us on +91 7020581998.

Visit <https://shop.boltiot.com> to register now