

INTERNSHIP ON IOT

(Internet of things)

COMPANY NAME-- BAROLA

TECHNOLOGY

REG NO : 39140039

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**DURATION 15 DAYS (12 /09/2021 to
26/09/2021)**

IOT(internet of things) internship

Smart Health

Our healthcare technologies are shaping the future of wireless vital signs monitoring (VSM) for both clinical and consumer uses. By leveraging optical and motion sensing, impedance, biopotential, and signal conditioning technologies, as well as advanced biometric algorithms, we're pushing the boundaries of what can be measured and learned from the human body.

Smart Factories

Our technologies enable precision sensing, monitoring, control, analytics, and efficient communications in factory and process automation applications. Our solutions help designers build industry 4.0-ready systems that meet the end users' need for more responsive, flexible, safer, and leaner manufacturing.

Smart Buildings & Smart City

Smart Buildings & Smart City

We help customers build smart building and city solutions delivering secure and intelligent sensing, localized decision making, and power efficiency. Our advanced imaging and sensing platforms combine hardware, software, and connectivity, enabling users to realize the full benefits of real-time monitoring in applications such as building security, asset tracking, parking space occupancy detection, object and gesture recognition, and many more.

Smart Agriculture

We empower the high tech farm with the most precise and robust inertial measurement and geolocation technologies available. Our advanced sensor fusion designs are the eyes and ears of todays automated farming vehicles and equipment, enabling real-time autonomous decision making, greater resource efficiencies, and simplified operations.

Smart Infrastructure

Highly integrated sensing and connectivity solutions enable our customers to monitor their critical assets at the edge – whether in industrial environments, remote field locations, or in transit. From structural health and conditions monitoring to location and movement tracking, our high performance and low power solutions deliver the most accurate, reliable information at the lowest cost of maintenance.

Integrating sensors with IoT cloud server:

The key steps involved with connecting to AWS IoT are:

Create a project in AWS. Create a “thing” Connect the “thing” to a device. Select a programming language

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Install the required SDKs for AWS IoT on the client/device.

SENSING AS A SERVICE:

Sensing as a Service (SaS) is an IoT-based cloud service prototype that facilitates access to the IoT. It can also promote an efficient delivery of sensor data based on demand via a data stream to different stakeholders to meet the requirements.

WORKING WITH PYTHON IDLE and SENDING An EMAIL USING SMTP PROTOCOL:

Python – Sending Email using SMTP

Host – This is the host running your SMTP server. ...

Port – If you are providing host argument, then you need to specify a port, where SMTP server is listening. ...

Local_hostname – If your SMTP server is running on your local machine, then you can specify just localhost as of this option.

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Here are four basic steps for sending emails using Python:

Set up the SMTP server and log into your account.

Create the MIMEMultipart message object and load it with appropriate headers for From , To , and Subject fields.

Add your message body.

Send the message using the SMTP server object.

To send the mail you use `smtpObj` to connect to the SMTP server on the local machine. Then use the `sendmail` method along with the message, the from address, and the destination address as parameters (even though the from and to addresses are within the e-mail itself, these are not always used to route the mail).

Set up the Python virtual environment

From the command line, clone this example project, and change into the directory.

```
$ git clone https://github.com/loopDelicious/facial-recognition.git
```

```
$ python3 -m venv venv
```

```
$ source venv/bin/activate
```

```
(venv) $ pip install opencv-python imutils face-recognition sendgrid python-dotenv
```

If you're on a Windows machine, enter these commands in a command prompt window.

```
$ python -m venv venv
```

```
$ venv\Scripts\activate
```

```
(venv) $ pip install opencv-python imutils face-recognition sendgrid python-dotenv
```

Face-recognition – to recognize and manipulate faces

Sendgrid – for communicating with the SendGrid API to send emails from Python

Python-dotenv – to manage environment variables

The face-recognition package is a wrapper around the C++ toolkit dlib, which requires a C++11 compiler and CMake build system installed on your computer. If the pip installation above fails due to dlib, you may find detailed instructions in the following articles:

Install dlib (the easy, complete guide) (for Mac OS, Ubuntu and Raspberry Pi OS)

How to install dlib library for Python in Windows 10

This project uses code from community tutorials to build a custom face recognition dataset, do face recognition with OpenCV, and train a Raspberry Pi for facial recognition.

Add email notifications to face recognition

If someone from your dataset is recognized, the `facial_req_email.py` script snaps a picture and sends an email notification to announce the new arrival.

Run this command to open a webcam window and try it out.

INTEGRATION OF IOT APPLICATION TO CONTROL DEVICE:

IoT integration means making the mix of new IoT devices, IoT data, IoT platforms and IoT applications — combined with IT assets (business applications, legacy data, mobile, and SaaS) — work well together in the context of implementing end-to-end IoT business solutions. ...

Some IoT tools and devices are discussed below:

Tessel 2. It is used to build basic IoT prototypes and applications. ...

Eclipse IoT. This tool or instrument allows the user to develop, adopt and promote open source IoT technologies. ...

Arduino. ...

Platform IoT. ...

M2M Labs Mainspring. ...

Kinoma. ...

Device- Hive. ...

Kaax.

The five steps to address IoT integration challenges are:

Step 1: Adopt an API-First Approach. ...

Step 2: Identify Communication Requirements for IoT Devices. ...

Step 3: Leverage Cloud for Data and Process Integration. ...

Step 4: Selectively Use Traditional Software. ...

Step 5: Use API Management Tools

INTEGRATION OF CHAT BOT USING TELEGRAM For REMINDER:

How to Create a Telegram Reminder Bot Using Node-RED

Home » Blog » How to Create a Telegram Reminder Bot Using Node-RED

How to Create a Telegram Reminder Bot Using Node-RED

Anna Kravchenko

1 year Ago

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You probably wondered if it would be cool to set up reminders in the messenger about the need to drink water or feed your pet. In this article, we will look at how to easily and quickly create a Telegram chatbot in Node-RED, create reminder texts, and test it.

Node-RED is a browser-based data stream editor that allows you to easily combine data streams using various nodes that are collected in a palette (node-red palette).

Node – data node; the nodes of a decentralized network communicate via P2P protocols to exchange information about blocks and transactions. The node is the main building block of the flow.

Nodes are started by either receiving a message from a previous node in the thread or waiting for some external event, such as an incoming HTTP request or timer. They process this message or event and then can send the message to the next nodes in the stream.

The Node-RED palette includes a set of default nodes, which are the basic building blocks for creating threads.

Nodes can be added to the work area by dragging and dropping them from the palette using the quick add dialog or importing from the library or clipboard.

The nodes are connected by lines-wires through their ports. A node can have at most one input port and many output ports. If a node has unused changes, a blue circle appears above it. If there are errors in its configuration, it displays a red triangle.

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The essence of the Node-RED editor is that instead of writing programs and commands based on the code, to build the logic for sending messages by the bot, the user just needs to drag and drop objects (nodes) in the visual editor. Since Node-RED provides objects with typical functions, it is easy and affordable for everyone to create projects using them. More complex JavaScript functions can be recreated using a text editor.

The built-in node library allows you to save useful functions, templates or streams for reuse.

Using Node-RED is free, in addition Node-RED can integrate with anything using the API.

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26 September 2021

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. Pooja A (19S149001)** of **Electrical and Electronics Engineering** Department from Sathyabama Institute of Science and Technology has attended and successfully completed **15 days Internet of Things Internship** from 12 September to 26 September 2021 via Online Medium through our Platform.

We wish her all the best in future endeavors.

Regards,



S. Karan

Head Technical Services

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THANKING YOU

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