

Cloud Based monitoring of operations using BLYNK

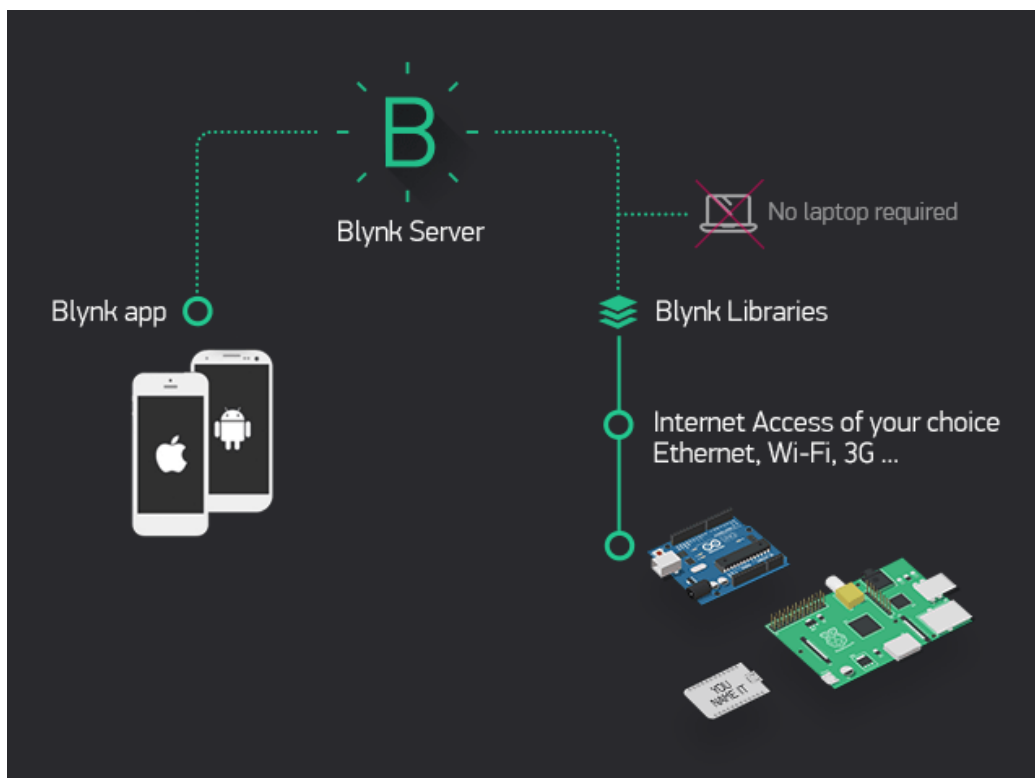
Report by By Vahin Reddy, B.Tech Mechatronics – VIth Sem

Introduction

Blynk is a cloud-based service that can be used for IOT applications. The platform can be used in smart home products, HVAC systems, agricultural applications and more. With the blynk app, we can control any supported device using a mobile device over various data communication types like Ethernet, WIFI, USB, etc.



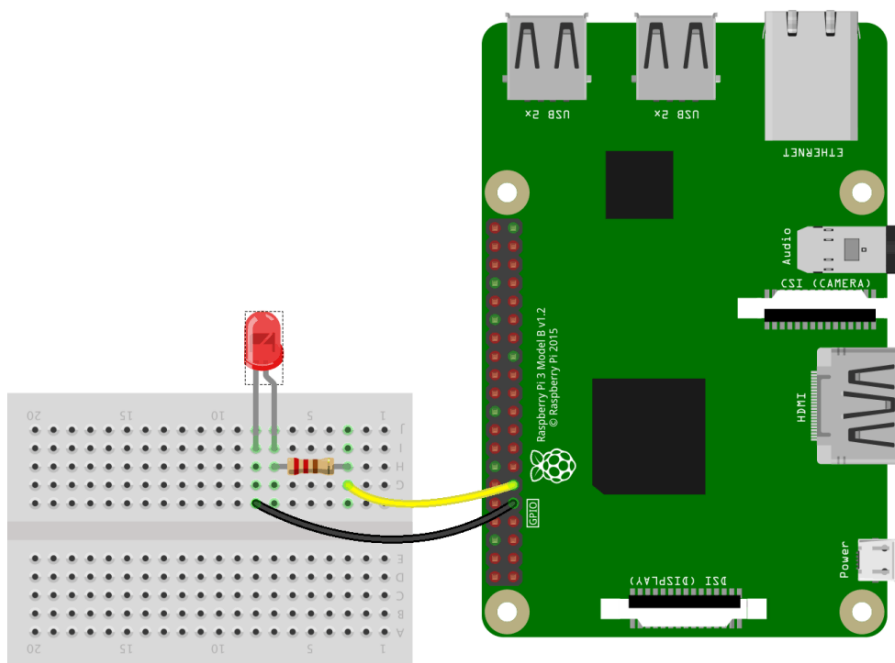
For this experiment, we will be using a Raspberry Pi with blynk installed, to control an LED with a pushbutton.



Components

To create the Blynk circuit, we will be utilizing a few hardware components such as:

- Red LED
- 230 Ohm Resistor
- Connecting wires
- Raspberry Pi
- Mobile device



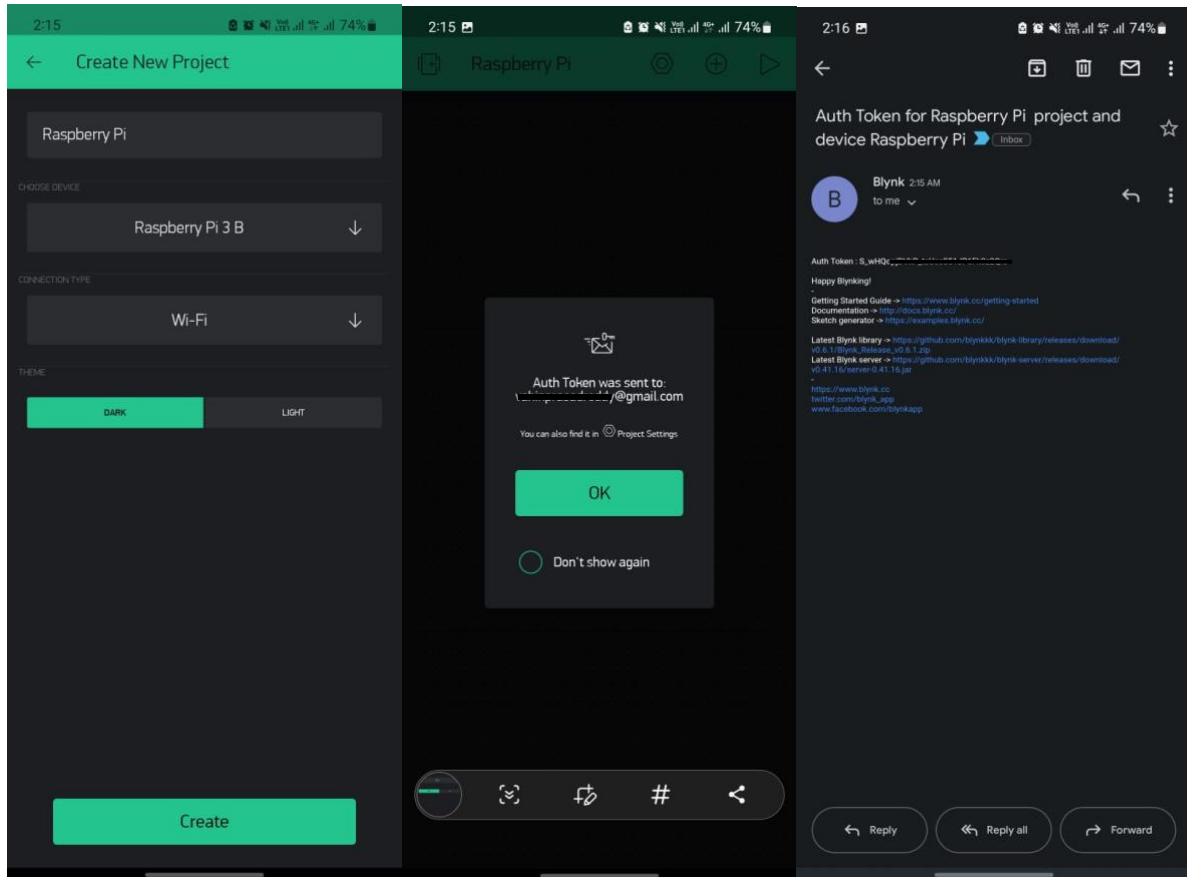
Procedure

We begin the process by:

- Installing Blynk on Raspberry Pi
- Host the Blynk server on the mobile device
- Launch Blynk on to the Raspberry Pi
- Connect the Blynk widgets
- Deploy the program

Installing Node-RED on Raspberry Pi

To initiate the process , we must create a new project on the Blynk mobile app and receive the Auth Token from the email address that we provide.



We must install Blynk on Raspberry Pi: <http://docs.blynk.cc/#hardware-set-ups-raspberry-pi>

Blynk EN RU

INTRO

IMPORTANT:

This documentation for a LEGACY version of Blynk platform which is no longer developed and supported. Latest documentation is here

How Blynk Works

Features

What do I need to Blynk?

DOWNLOADS

Blynk Apps for iOS or Android

Blynk Library

GETTING STARTED

Getting Started With The Blynk App

1. Create a Blynk Account
2. Create a New Project
3. Choose Your Hardware
4. Auth Token
5. Add a Widget
6. Run The Project

Getting Started With Hardware

How To Use an Example Sketch

Auth Token

Blynking

HARDWARE SET-UPS

Arduino: your USB (no shield)

Raspberry Pi

1. Connect your Raspberry Pi to the Internet and open it's console.
2. Run this command (it updates your OS package repository to include the required packages):

```
curl -sL "https://deb.nodesource.com/setup_6.x" | sudo -E bash -
```

3. Download and build Blynk JS library using npm:

```
sudo apt-get update && sudo apt-get upgrade
sudo apt-get install build-essential
sudo apt-get install -g npm
sudo npm install -g onoff
sudo npm install -g blynk-library
```

4. Run Blynk test script (put your auth token):

```
blynk-client 715f8cafe95f4a91bae3198376caab8c
```

5. You can write our own script based on [examples](#)
6. To enable Blynk auto restart for Pi, find `/etc/rc.local` file and add there:

```
node full_path_to_your_script.js <Auth Token>
```

The image displays three sequential screenshots of a terminal window on a Raspberry Pi, showing the process of installing Blynk. The terminal window is titled 'pi@raspberrypi: ~ 97x24'. The background of the terminal shows a stylized green and black cat face.

First Screenshot: The terminal shows the initial setup steps. It starts with a warning about low voltage and a prompt to check power supply. The user runs `apt-get update` and `apt-get install nodejs`. The output shows the installation of Node.js 6.x LTS Boron.

```

pi@raspberrypi: ~ 97x24
distributions. To learn more about usage, see the repository:
https://github.com/nodesource/distributions

Continuing in 20 seconds ...

# Installing the NodeSource Node.js 6.x LTS Boron repo...

# Populating apt-get cache...

# apt-get update
Get:1 http://archive.raspbian.org/debian buster InRelease [32.6 kB]
Get:2 http://raspbian.raspbian.org/raspbian buster InRelease [15.0 kB]
Hit:3 https://deb.nodesource.com/node_6.x buster InRelease
Get:4 http://packages.ros.org/ros/ubuntu buster InRelease [4,677 B]
Get:5 http://raspbian.raspbian.org/raspbian buster/main armhf Packages [13.0 MB]
Get:6 http://archive.raspbian.org/debian buster/main armhf Packages [391 kB]
Get:7 http://packages.ros.org/ros/ubuntu buster/main armhf Packages [59.0 kB]
30% [5 Packages 1,265 kB/13.0 MB 10%] 191 kB/s 1min 15s

```

Second Screenshot: The terminal shows the installation of Yarn and the Blynk library. The user runs `sudo apt-get install -y nodejs` and `sudo apt-get install gcc g++ make`. The output shows the installation of Node.js 6.x LTS Boron and the Blynk library.

```

pi@raspberrypi: ~ 97x24
Hit:1 https://deb.nodesource.com/node_6.x buster InRelease
Hit:2 http://raspbian.raspbian.org/raspbian buster InRelease
Hit:3 http://archive.raspbian.org/debian buster InRelease
Hit:4 http://packages.ros.org/ros/ubuntu buster InRelease
Reading package lists... Done

# Run 'sudo apt-get install -y nodejs' to install Node.js 6.x LTS Boron and npm
# You may also need development tools to build native addons:
# sudo apt-get install gcc g++ make
# To install the Yarn package manager, run:
# curl -sL https://dl.yarnpkg.com/debian/pubkey.gpg | gpg --dearmor | sudo tee /usr/share/keyrings/yarnkey.gpg >/dev/null
# echo "deb [signed-by=/usr/share/keyrings/yarnkey.gpg] https://dl.yarnpkg.com/debian stable main" | sudo tee /etc/apt/sources.list.d/yarn.list
# sudo apt-get update && sudo apt-get install yarn

pi@raspberrypi: ~ $ sudo apt-get update && sudo apt-get upgrade
Hit:1 https://deb.nodesource.com/node_6.x buster InRelease
Hit:2 http://archive.raspbian.org/debian buster InRelease
Hit:3 http://raspbian.raspbian.org/raspbian buster InRelease
Hit:4 http://packages.ros.org/ros/ubuntu buster InRelease
Reading package lists... 90%

```

Third Screenshot: The terminal shows the final steps of installing the Blynk client and connecting to the cloud. The user runs `sudo npm install -g blynk-library` and `blynk-client`. The output shows the installation of the Blynk library and the Blynk client.

```

pi@raspberrypi: ~ 97x24
pi@raspberrypi: ~ $ sudo npm install -g blynk-library
npm WARN npm npm does not support Node.js v10.24.0
npm WARN npm You should probably upgrade to a newer version of node as we
npm WARN npm can't make any promises that npm will work with this version.
npm WARN npm Supported releases of Node.js are the latest release of 4, 6, 7, 8, 9.
npm WARN npm You can find the latest version at https://nodejs.org/
/usr/local/bin/blynk-client -> /usr/local/lib/node_modules/blynk-library/bin/blynk-client.js
/usr/local/bin/blynk-ctrl -> /usr/local/lib/node_modules/blynk-library/bin/blynk-ctrl.js
+ blynk-library@0.5.4
updated 1 package in 4.225s

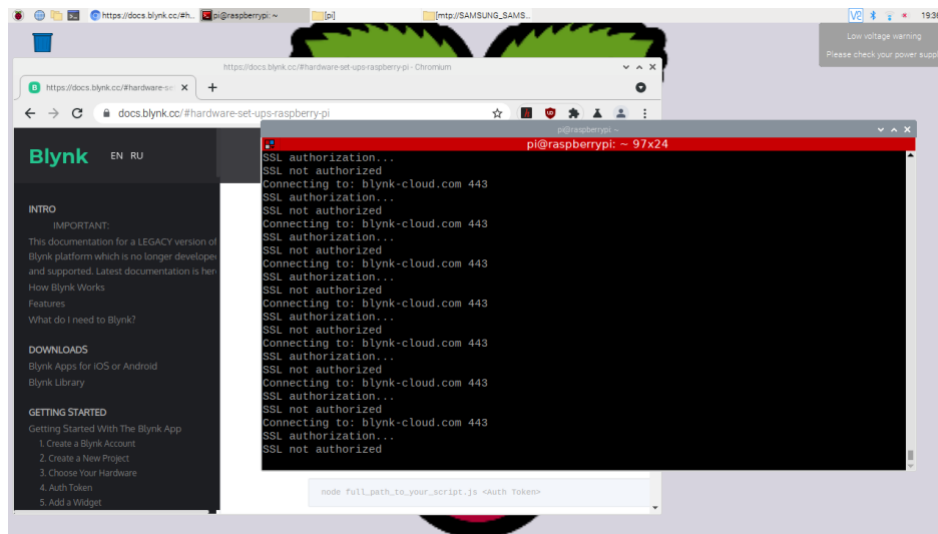
pi@raspberrypi: ~ $ blynk-client Em5T123EWSurXtJ22fpuF59avRQTE_bM

Give Blynk a Github star! => https://github.com/vshymansky/blynk-library-js

Connecting to: blynk-cloud.com 443
SSL authorization...
SSL not authorized

```

SSL Error Loop



```
Connecting to: blynk-cloud.com 443
SSL authorization...
SSL not authorized
```

After updating and installing all the necessary dependencies using the terminal, we execute the program using the Authentication token that was sent by email. However, the software was never able to get authorization of SSL. Even after referring to the Blynk community [1], the problem was unable to be resolved.

Conclusion

With Blynk, it would be possible to control and monitor IOT devices such as a Raspberry Pi. However, after gathering all the components and connecting them to the Raspberry Pi, the SSL communication was unable to be authorized regardless of all the troubleshooting.

Reference

- [1] "SSL not authorized," Blynk Community, 1 March 2021. [Online]. Available: <https://community.blynk.cc/t/ssl-not-authorized/52056>.