Hands-On Internet of Things with Blynk

Build on the power of Blynk to configure smart devices and build exciting IoT projects

By Pradeeka Seneviratne

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Preface

Blynk is referred to as the most user-friendly IoT platform, providing a way to build mobile applications in minutes. With Blynk's drag and drop mobile app builder, anyone can build amazing IoT applications with minimal resources and effort. Blynk supports over 400 hardware platforms and major connectivity types. The hardware could be prototyping platforms, such as Arduino and Raspberry Pi, to industrial-grade ESP8266, Intel, Sierra Wireless, Particle, and Texas Instruments offerings.

This book uses Raspberry Pi as the main hardware platform and C++ for writing code to build projects.

The first part of this book offers how to set up the development environment with Raspberry Pi, Raspbian Stretch LITE, and various software components. Then, the reader will build the first IoT application with Blynk.

The middle part of the book presents how to use and configure various widgets (control, display, and notify) with Blynk app builder to build applications.

The latter part of the book will introduce how to connect with and use built-in sensors on mobile devices such as Android and iOS. After this, the reader will learn how to set up a personal Blynk server on Raspberry Pi. Finally, the reader will learn how to build a robot vehicle that can be controlled with a Blynk app through the Blynk cloud service.

Who this book is for

This book is for those who want to build rapid IoT applications in minutes for connected products and services with only a basic understanding of electronics, Raspberry Pi, and C++.

What this book covers

`Chapter 1`, *Setting Up a Development Environment*, explains how to set up the development environment for Blynk with Raspberry Pi. It describes how to install Blynk libraries and some supporting software components that you can use to build Raspberry Pi-based IoT hardware. Then, you will build a control application with Blynk app builder. After that, you need to write a C++ application to connect with the Blynk cloud. Finally, you run the Blynk app to connect the Raspberry Pi to Blynk app builder through the Blynk cloud over a Wi-Fi network.

`Chapter 2`, *Building Your First Blynk Application*, explains how to build your first Blynk application to control an LED (or any actuator) attached to the Raspberry Pi from your smartphone or tablet. First, you will build an app with the Blynk app builder. Then, you will use digital or virtual pins to control the attached LED. After that, you will learn how to write a simple C++ application with nano text editor. Finally, you will build the application and run it to connect the Blynk app and the Raspberry Pi hardware.

`Chapter 3`, *Using Controller Widgets*, covers how to use controller widgets such as Slider, Step, Joystick, and zeRGBa, to control actuators. You will also learn how to use WiringPi's software PWM library, connect controller widgets with digital and virtual pins, use the split and merge mode, and parsing values coming from the controller widgets.

`Chapter 4`, *Using Display Widgets*, guides you on how to use display widgets, such as the Value Display widget, and Labeled Value widget to show sensor data, and the LED widget to show a button state.

`Chapter 5`, *Using Notification Widgets*, explains how to send notifications to the Blynk app from Raspberry Pi. You will schedule your Raspberry Pi to send notifications to your smartphone on user action. Some of the notification widgets can be integrated with third-party services, such as Twitter to send tweets from Raspberry Pi. Then, you will use the notification widget to send pop-up notifications to the smartphone or tablet. Finally, you will also learn how to send emails from Raspberry Pi using the Email widget.

`Chapter 6`, *Connecting with Sensors on Your Mobile Device*, guides you on how to read data from built-in sensors such as the accelerometer, light sensor, and proximity sensor on your smartphone or tablet.

`Chapter 7`, *Setting Up a Personal Blynk Server*, guides you on how to set up a personal Blynk server on Raspberry Pi. The Blynk personal server replaces the Blynk cloud. You can connect all your Blynk hardware to this personal server through your local network.

`Chapter 8`, *Controlling a Robot with Blynk*, explains how to build a robot vehicle using a two-wheeled robot chassis kit. Then, you will build an application with the Blynk app builder to control it through the Blynk cloud by connecting to a Wi-Fi network.

To get the most out of this book

You should install the Raspbian Stretch LITE operating system on Raspberry Pi. The nano text editor is used to write C++ code in the Raspberry Pi environment. PuTTY is used to make serial connections between Raspberry Pi and the computer that is running Windows.

Download the example code files

You can download the example code files for this book from your account at `www.packtpub.com`. If you purchased this book elsewhere, you can visit `www.packtpub.com/support` and register to have the files emailed directly to you.

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The code bundle for the book is also hosted on GitHub at `https://github.com/PacktPublishing/Hands-On-Internet-of-Things-with-Blynk`. If there's an update to the code, it will be updated on the existing GitHub repository.

We also have other code bundles from our rich catalog of books and videos available at `https://github.com/PacktPublishing/`. Check them out!