



Practical Python Programming for IoT

Build advanced IoT projects using a Raspberry Pi 4, MQTT,
RESTful APIs, WebSockets, and Python 3

Gary Smart



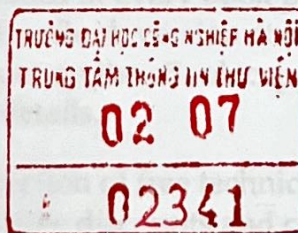
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Packt

BIRMINGHAM - MUMBAI



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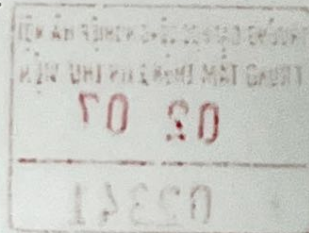
First published: October 2020

Production reference: 1151020

Published by Packt Publishing Ltd.
Livery Place
35 Livery Street
Birmingham
B3 2PB, UK.

ISBN 978-1-83898-246-1

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Contributors

About the author

Gary Smart is a senior software engineer and an IoT and integration expert. The commencement of Gary's IT career coincided with the birth of the World Wide Web and has grown in line with the internet and emerging technologies ever since, including the rise of mobile phones and tablets, embedded technologies, SaaS and business migration to the cloud, and in recent years, the IoT revolution. Gary's practical experience includes both technical and management positions and experience in both small and large organizations, including Hewlett-Packard, Deakin University, and Pacific Hydro-Tango, boutique consulting firms, and innovative internet and IoT start-ups.

A big and loving thanks to my wife, Kylie. Without your encouragement and support, this book and the opportunity to share my passion and knowledge with others would not have happened. And a big thanks also to my friends and colleagues who along the journey have likewise provided encouragement and expressed sincere interest in the material I was producing. You've all helped me understand that I have something valuable to share! Thank you!

About the reviewer

Federico Gonzalez is an Argentinian-based cooperative developer and teacher. He studies information systems engineering at UTN with a focus on development. He is part of Devcoop, a cooperative where he works on projects using a broad range of technologies, currently focusing on developing software and teaching React.js. He contributes to open source projects such as Lelylan (an IoT cloud platform with microservices architecture), EventoL (conference and installfest management software), and some minor contributions to projects with a Docker environment, Python, or JavaScript code. He also gives various workshops at universities, conferences, and companies in Argentina featuring React.js, Python, Docker, open source free software, and cooperatives.

Devcoop is my company. It lets me work on many interesting projects and sponsors me to go to conferences and give workshops and talks, and also helps me grow my teaching skills. I've learned a lot from the people that contribute to free software communities (USLA, GNUTN, CAFELUG, and more) and I'm a contributor too.

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Table of Contents

Preface

1

Section 1: Programming with Python and the Raspberry Pi

Chapter 1: Setting Up your Development Environment	15
Technical requirements	16
Understanding your Python installation	16
Setting up a Python virtual environment	18
Installing Python GPIO packages with pip	21
Anatomy of a virtual environment	26
Alternative methods of executing a Python script	29
Using sudo within virtual environments	29
Executing Python scripts outside of their virtual environments	30
Running a Python script at boot	31
Configuring the GPIO interface on our Raspberry Pi	33
Configuring the PiGPIO daemon	35
Summary	36
Further reading	37
Chapter 2: Getting Started with Python and IoT	39
Technical requirements	40
Creating a breadboard prototype circuit	41
Understanding the breadboard	42
Positioning and connecting the push button	44
Positioning and connecting the LED	47
Positioning and connecting the resistor	49
Reading an electronic schematic diagram	51
Reading the push button schematic connection	52
Reading the LED and resistor schematic connection	54
Introducing ground connections and symbols	56
Exploring two ways to flash an LED in Python	58
Blinking with GPIOZero	58
Imports	59
Pin Factory configuration	60
Blinking the LED	60
Blinking with PiGPIO	60
Imports	61
PiGPIO and pin configuration	61
Blinking the LED	62

Comparing the GPIOZero and PiGPIO examples	62
Exploring two ways to integrate a push button in Python	63
Responding to a button press with GPIOZero	63
Imports	64
Button pressed handler	64
Button configuration	65
Preventing the main thread from terminating	66
Responding to a button press with PiGPIO	66
Button pin configuration	67
Button pressed handler	67
Creating your first IoT program	69
Running and testing the Python server	70
Understanding the server code	70
Imports	71
Variable definitions	71
The resolve_thing_name() method	72
The get_latest_dweet() method	72
The poll_dweets_forever() method	74
The process_dweet() method	74
The main program entry point	75
Extending your IoT program	76
Implementing a dweeting button	76
PiGPIO LED as a class	77
Summary	78
Questions	78
Further reading	79
Chapter 3: Networking with RESTful APIs and Web Sockets Using Flask	81
Technical requirements	82
Introducing the Flask microservices framework	83
Creating a RESTful API service with Flask-RESTful	83
Running and testing the Python server	84
Understanding the server code	87
Imports	87
Flask and Flask-RESTful API instance variables	88
Global variables	88
The init_led() method	89
Serving a web page	89
The LEDControl class	90
The get() class method	91
The post() class method	91
LEDController registration and starting the server	92
Introduction to PWM	93
Adding a RESTful API client web page	94
Understanding the client-side code	94
JavaScript imports	95
The getState() function	95

The postUpdate() function	96
The updateControls() function	96
Registering event handlers with jQuery	97
The web page HTML	98
Creating a Web Socket service with Flask-SocketIO	99
Running and testing the Python server	99
Server code walkthrough	101
Imports	101
Flask and Flask-RESTful API instance variables	102
Serving a web page	102
Connecting and disconnecting handlers	102
LED handler	103
Starting the server	104
Adding a Web Socket client web page	105
Understanding the client-side code	105
Imports	106
Socket.IO connect and disconnect handlers	106
The on LED handler	107
The document ready function	107
The web page HTML	108
Comparing the RESTful API and Web Socket servers	109
Summary	110
Questions	111
Further reading	111
Chapter 4: Networking with MQTT, Python, and the Mosquitto MQTT Broker	113
Technical requirements	114
Installing the Mosquitto MQTT broker	115
Learning MQTT by example	117
Publishing and subscribing MQTT messages	119
Exploring MQTT topics and wildcards	121
Applying Quality of Service to messages	124
Retaining messages for later delivery	127
Publishing a retained message	127
Creating durable connections	129
Saying goodbye with a Will	131
Using MQTT broker services	133
Introducing the Python Paho-MQTT client library	134
Controlling an LED with Python and MQTT	135
Running the LED MQTT example	136
Understanding the code	137
Imports	137
Global variables	138
The set_led_level(data) method	138
The on_connect() and on_disconnect() MQTT callback methods	139
The on_message() MQTT callback method	140

The init_mqtt() method	141
Main entry point	142
Building a web-based MQTT client	143
Understanding the code	143
Imports	143
Global variables	144
The Paho JavaScript MQTT client	144
Connecting to the broker	145
The onConnectionLost and onMessageArrived handler methods	146
JQuery document ready function	147
Summary	148
Questions	149
Further reading	149
Section 2: Practical Electronics for Interacting with the Physical World	
Chapter 5: Connecting Your Raspberry Pi to the Physical World	153
Technical requirements	153
Understanding Raspberry Pi pin numbering	155
Exploring popular Python GPIO libraries	157
Reviewing GPIOZero – simple interfacing for beginners	158
Reviewing RPi.GPIO – a low-level GPIO for beginners	158
Reviewing Circuit Python and Blinky – interfacing for complex devices	159
Reviewing PiGPIO – a low-level GPIO library	160
Exploring remote GPIO with PiGPIO (and GPIOZero)	160
Reviewing SPIDev and SMBus – dedicated SPI and I2C libraries	161
Why PiGPIO?	162
Exploring Raspberry Pi electronic interfacing options	163
Understanding digital IO	163
Understanding analog IO	163
Understanding Pulse-Width Modulation	164
Creating PWM signals	165
Understanding SPI, I2C, and 1-wire interfaces	167
Understanding the serial / UART protocol	167
Interfacing with an analog-to-digital converter	168
Building the ADS1115 ADC circuit	170
Making sure the ADS1115 is connected to your Raspberry Pi	174
Reading analog input with the ADS1115	175
Understanding the code	177
Imports	177
ADS1115 setup and configuration	178
Global variables	178
Program entry point	179
Using PWM to control an LED	179
Understanding the code	181
Global variables	181

Range mapping function	181
Generating the PWM signal	182
Visually exploring PWM with PiScope	182
Visualizing software and hardware-timed PWM	186
Summary	187
Questions	188
Further reading	188
Chapter 6: Electronics 101 for the Software Engineer	189
Technical requirements	190
Fitting out your workshop	191
Buying electronic modules and components	192
Purchasing loose components	192
Purchasing open source hardware modules	193
Keeping your Raspberry Pi safe	194
Three ways electronic components fail	195
Electronics interfacing principles for GPIO control	196
Ohm's Law and power	196
Kirchhoff's circuit laws	197
Why are we using a 200 Ohm resistor for the LED circuit?	197
Calculating the resistor value	199
Factoring in the Raspberry Pi's current limits	200
Calculating the resistor's power dissipation	201
Exploring digital electronics	203
Digital output	203
Digital input	205
Using pull-up and pull-down resistors	208
The resistor solution	208
The code solution	210
Exploring analog electronics	212
Analog output	213
Analog input	214
Voltage dividers	214
Understanding logic-level conversion	218
Voltage dividers as logic-level converters	218
Logic-level converter ICs and modules	219
Comparing voltage dividers and logic-level converters	224
Summary	224
Questions	225
Further reading	226
Section 3: IoT Playground - Practical Examples to Interact with the Physical World	
Chapter 7: Turning Things On and Off	231
Technical requirements	232

Exploring a relay driver circuit	233
Determining a load's voltage and current	234
Measuring the current requirement of a DC motor	234
Measuring the current requirement of a relay and LED	237
Using an optocoupler as a switch	239
Building the optocoupler circuit	240
Controlling the optocoupler with Python	242
Using a transistor as a switch	244
Building the MOSFET circuit	246
Controlling the MOSFET with Python	249
Using a relay as a switch	252
Building the relay driver circuit	252
Controlling the Relay Driver Circuit with Python	256
Summary	258
Questions	258
Further reading	259
Chapter 8: Lights, Indicators, and Displaying Information	261
Technical requirements	262
Making color with an RGB LED and PWM	263
Creating the RGB LED circuit	264
Running and exploring the RGB LED code	266
Controlling a multi-color APA102 LED strip with SPI	269
Creating the APA102 circuit	270
Powering the APA102 circuit	274
Configuring and running the APA102 LED strip code	275
APA102 LED strip code walkthrough	275
Discussion of APA102 and the SPI interface	279
APA102 LED strip troubleshooting tips	280
Using an OLED display	281
Connecting the OLED display	282
Verifying whether the OLED display is connected	284
Configuring and running the OLED example	284
OLED code walkthrough	285
Making sound with buzzers and PWM	289
Building the RTTTL circuit	290
Running the RTTTL music example	293
Summary	294
Questions	295
Further reading	295
Chapter 9: Measuring Temperature, Humidity, and Light Levels	297
Technical requirements	298
Measuring temperature and humidity	299
Creating the DHT11/DHT22 circuit	300

Running and exploring the DHT11/DHT22 code	302
Detecting light	304
Creating an LDR light-detecting circuit	306
Running the LDR example code	309
LDR code walkthrough	312
LDR configuration summary	314
Detecting moisture	315
Comparing detection options	318
Summary	320
Questions	321
Chapter 10: Movement with Servos, Motors, and Steppers	323
Technical requirements	323
Using PWM to rotate a servo	325
Connecting a servo to your Raspberry Pi	325
How a servo is controlled using PWM	328
Running and exploring the servo code	329
Different types of servos	332
Using an H-Bridge IC to control a motor	333
Building the motor driver circuit	335
Running the example H-Bridge code to control a motor	340
motor.py	340
motor_class.py	342
Introduction to stepper motor control	346
Connecting the stepper motor to the L293D circuit	348
Running and exploring the stepper motor code	349
Summary	354
Questions	354
Chapter 11: Measuring Distance and Detecting Movement	357
Technical requirements	358
Detecting movement with a PIR sensor	359
Creating the PIR sensor circuit	361
Running and exploring the PIR sensor code	362
Measuring distance with an ultrasonic sensor	364
How an ultrasonic distance sensor works	366
HC-SR04 distance measurement process	367
Building the HC-SR04 circuit	368
Running and exploring the HC-SR04 example code	371
Detecting movement and distance with Hall-effect sensors	375
Creating a Hall-effect sensor circuit	377
Running and exploring the Hall-effect sensor code	379
Summary	380
Questions	381

Chapter 12: Advanced IoT Programming Concepts - Threads, AsyncIO, and Event Loops	383
Technical requirements	384
Building and testing our circuit	385
Building the reference circuit	387
Running the examples	391
Exploring the event-loop approach	392
Exploring a threaded approach	395
Exploring the publisher-subscriber alternative	401
Exploring an AsyncIO approach	403
An asynchronous experiment	408
Summary	409
Questions	410
Further reading	410
Chapter 13: IoT Visualization and Automation Platforms	411
Technical requirements	412
Triggering an IFTTT Applet from your Raspberry Pi	413
Creating the temperature monitoring circuit	414
Creating and configuring an IFTTT Applet	414
Triggering an IFTTT Webhook	420
Triggering an IFTTT Applet in Python	423
Actioning your Raspberry Pi from an IFTTT Applet	425
Method 1 – using the dweet.io service as an intermediary	426
Method 2 – creating a Flask-RESTful service	427
Creating the LED circuit	427
Running the IFTTT and LED Python program	428
Creating the IFTTT Applet	428
Controlling the LED from an email	432
IFTTT troubleshooting	434
Visualizing data with the ThingSpeak platform	435
Configuring the ThinkSpeak platform	437
Configuring and running the ThinkSpeak Python program	439
Other IoT and automation platforms for further exploration	441
Zapier	442
IFTTT platform	442
ThingsBoard IoT platform	442
Home Assistant	443
Amazon Web Services (AWS)	444
Microsoft Azure, IBM Watson, and Google Cloud	444
Summary	445
Questions	445
Chapter 14: Tying It All Together - An IoT Christmas Tree	447
Technical requirements	448

Overview of the IoT Christmas tree	450
Building the IoT circuit	451
Three IoT service programs	452
Configuring, running, and using the Tree API service	453
Configuring the Tree API service	455
Running the Tree API service	455
Configuring, running, and using the Tree MQTT service	458
Configuring the Tree MQTT service	460
Running the Tree MQTT service program	461
Integrating the IoT with dweet.io	462
Configuring the Tree MQTT service	465
Running the dweet integration service program	466
Integrating with email and Google Assistant via IFTTT	467
Integration with email	468
Integration with Google Assistant	469
Ideas and suggestions to extend your IoT	472
Summary	473
Questions	474
Assessments	477
Other Books You May Enjoy	487
Index	491

What this book covers

Chapter 1, *Setting Up Your Development Environment*, explores the Python ecosystem in the context of the Raspberry Pi OS and teaches you how to correctly set up a Python development project for success. You will also learn alternative ways of starting Python programs and how to configure your Raspberry Pi for GPIO interfacing.

Chapter 2, *Getting Started with Python and IoT*, teaches you the basics of electronics and GPIO interfacing with Python. You will build and experiment with simple electronic circuits that are controlled using Python, and combine this learning to build a simple yet complete internet-controllable IoT application from the ground up using the dweet.io platform.