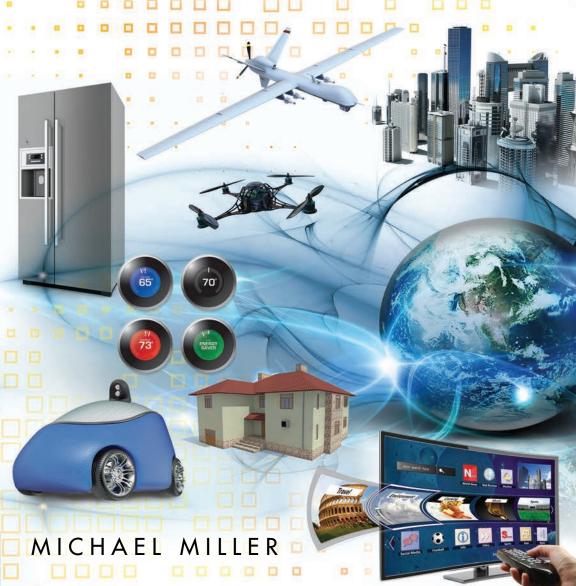
THE INTERNET OF THINGS

HOW SMART TVs, SMART CARS, SMART HOMES, AND SMART CITIES ARE CHANGING THE WORLD



The Internet of Things

How Smart TVs, Smart Cars, Smart Homes, and Smart Cities Are Changing the World

MICHAEL MILLER



800 East 96th Street, Indianapolis, Indiana 46240 USA

The Internet of Things, uPDF eBook

Table of Contents

Cover

Contents at a Glance

Table of Contents

Introduction

Chapter 1: Smart Connectivity: Welcome to the Internet of Things

Welcome to the Future

What is the Internet of Things?

What Kinds of Things Can Be Connected to the Internet of Things?

What Do All Those Connected Things Do?

When Will the Internet of Things Arrive?

How Important is the Internet of Things?

Smart Connectivity and You

Chapter 2: Smart Technology: How the Internet of Things Works

Understanding the Internet of Things: The Big Picture

Building the Internet of Things

Stage One: Device Proliferation and Connection

Stage Two: Making Things Work Together

Stage Three: Developing Intelligent Applications

Understanding Smart Devices



What's a Thing?

Building Blocks

Deconstructing a Device

Store and Forward

Understanding Network Connections

How Traditional Networks Work

Transferring Data Over a Network

Understanding IP Addresses

Examining Wireless Technologies

Understanding RF Technology

Wi-Fi

Bluetooth and Bluetooth Smart

Cellular Networks

Mesh Networks

Proprietary Cellular Networks

Which Technologies are Best?

Understanding the Data

Understanding Intelligent Applications

Understanding Big Data

Data Harvesting

Data Storage

Data Analysis

Profiting from the Internet of Things

Resources

Smart Technology and You

Chapter 3: Smart TVs: Viewing in a Connected World

What Exactly is Smart TV?



What's Inside a Smart TV?

What You Need to Use a Smart TV

What a Smart TV Does

Considering Smart TV Operating Systems

Examining a Typical Smart TV

Exploring Smart TV Set-Top Devices

How to Choose a Smart TV or Device

How Secure are Smart TVs?

Hacking Into the System

An Eye Into Your Living Room

Official Snooping

Integrating Smart TVs into the Internet of Things

Smart TVs and You

Chapter 4: Smart Appliances: From Remote Control Ovens to Talking Refrigerators

Understanding Smart Appliances Today

Smart Operation

Smart Monitoring

Smart Energy Savings

Smart Maintenance

Smarter Food Storage with Smart Refrigerators

Smarter Cooking with Smart Ovens

Smarter Cleaning with Smart Washers and Dryers

Smarter Dishwashing with Smart Dishwashers

Smart Appliances and You

Chapter 5: Smart Homes: Tomorrowland Today

Automating the Home



Convenience

Security

Efficiency

Tying It All Together

A Short History of Smart Homes

Smart Steps to a Smart Home

Step 1: Basic Communications

Step 2: Simple Commands

Step 3: Automating Basic Functions

Step 4: Tracking and Taking Action

Step 5: Prompting Activities and Answering Questions

Step 6: Automating Tasks

Simple Components for a Smart Home

Sensors

Controllers

Actuators

Buses

Interfaces

Networks

Smarter Living with Smart Furniture

Smarter Environment with Smart Lighting

Smarter Views with Smart Windows

Motorized Window Coverings

Smart Glass

Smarter Heating and Cooling with Smart Thermostats

Nest Learning Thermostat

Other Smart Thermostats

Using Nest with Other Smart Devices



Data Collection and Control Issues

Smarter Protection with Smart Security Systems

Smarter Security Systems

Smart Locks

Smart Security Cameras

Smarter Sensing with Smart Monitors

Smart Smoke Detectors

Smart Air Quality Monitors

Smarter Information with Amazon Echo

Reimagining the Smart Network

INSTEON

Z-Wave

ZigBee

Controlling the Smart Home

Control4

Crestron

HomeSeer

Iris

mControl

Quirky

SmartThings

Vera

Vivint

WeMo

Wink

X10

Where Can You Find Smart Home Devices?

Smart Homes and You



Chapter 6: Smart Clothing: Wearable Tech

Wearable Technology Todayand Tomorrow

Watching the Smartwatches

Samsung Galaxy Gear

Android Wear

Other Popular Smartwatches

Apple Watch

Exercising with Fitness Trackers

Understanding Fitness and Activity Trackers

Tracking the Trackers

Keeping Well with Wearable Healthcare Devices

Monitoring Your Family with Wearable Trackers

Recording with Wearable Cameras

Eyeing Smart Eyewear

Google Glass

Recon Jet

Glass Backlash

Wearing Other Smart Clothing

Dealing with Your Personal Data

The Value of Data

It's Your Data, Isn't It?

Managing the Data

Putting the Data to Use

Enter the Insurance Companies

How to Keep Your Personal Data Personal

Where Do You Get Those Wonderful Toys?

Smart Clothing and You

Chapter 7: Smart Shopping: They Know What You



Want Before You Know You Want It

Eliminating the Need to Shop

Changing the Retail Environment

Smart Store Tech

Making It Easier to Pay

Deliveries by Drone

Managing Inventory Smarter

What About Your Data?

Smart Shopping and You

Chapter 8: Smart Cars: Connecting on the Road

Smart Cars Todayand Tomorrow

Smart Functionality

Smart Diagnostics

Smarter Driving

Smart Communications

Smart Entertainment

Smart Climate Control

Hacking a Smart Car

Cars That Drive Themselves

How Self-Driving Cars Work

What's Coming

Levels of Automation

Introducing Google's Self-Driving Car

Pros and Cons of Autonomous Autos

The Good

The Bad

The Ugly

Navigating the Legal Landscape



Smart Cars and You

Chapter 9: Smart Aircraft: Invasion of the Drones

What Drones Areand What they aren't

Understanding Radio-Controlled Aircraft

What Makes a Drone a Drone?

Different Kinds of Drones

How Drones are Used Today

Military Drones

Intelligence Drones

Surveillance Drones

Civilian Drones

The Future of Drone Aircraft

Smarter Drones

Delivery Drones

Regulating Drone Aircraft

Fly the Scary Skies: The Problems with Drones

Collision and Liability Concerns

Security Concerns

Privacy Concerns

Other Smart Aircraft Technologies

Smart Structures

Smart Skin

Smart Maintenance

Smart Cabins

Smart Aircraft and You

Chapter 10: Smart Warfare: Rise of the Machines

The Past, Present, Future of Tech-Based Warfare

Three Generations of Warfare



The Fourth Generation

Smart Aircraft

Smart Bombs

Smart Weapons

Robot Soldiers

Today's Army Robots

Robotic Armor and Super Soldiers

Autonomous Fighting Robots

Smart Strategy

Smart Combat and You

Chapter 11: Smart Medicine: We Have the Technology

Welcome to the Internet of Medical Things

Connecting Devices

Centralizing Records

Realizing Benefits

Smart Medical Devices and Monitoring

Examining Smart Medical Devices

Monitoring the Monitors

Smart Monitoring for Seniors

Smart Meds

Smart Hospitals

Everything's Monitored, and Nothing's Monitored

Smarter Devices

Smarter Standards

Other Smart Equipment

Smart Medical Records



Apple HealthKit

Dossia

FollowMyHealth

MediConnect

Microsoft HealthVault

Smart Medicine and You

Chapter 12: Smart Businesses: Better Working Through Technology

Smart Offices

Smart Connectivity

Smart Environment

Virtual Meetings

Smart Stores

Smart Inventory Management

Smart Manufacturing

Smart Transportation

Smart Warehousing

Smart Management

Smart Businesses and You

Chapter 13: Smart Cities: Everyone's Connected

Understanding the Smart City

Smart Infrastructure

Smart Communication and Emergency Management

Smart Roads and Traffic Management

Smart Parking

Smart Traffic Management

Smart Roads

Smart Public Lighting



Smart Utilities

Smart Waste Management

Smart Water Management

Smart Grid

Understanding the Smart Grid

Smarter Energy Management

A Self-Healing Grid

Collecting and Using the Data

Building the Smart Grid

Smart Cities and You

Chapter 14: Smart World: The Global Internet of Everything

Scaling the Internet of Things Globally

Connecting Cities, States, and Countries

The Rural Internet of Things

The Agricultural Internet of Things

Smart Irrigation

Pest Control

Smart Tractors

Self-Driving Tractors

The Environmental Internet of Things

Battling Climate Change

Impediments to the Global Internet of Things

Technological Challenges

Security Challenges

Bureaucratic and Political Challenges

The Smart World and You



Chapter 15: Smart Problems: Big Brother is Watching You

Privacy Issues

What do They Really Know About You?

Your Government is Spying On You

Privacy Versus the IoT

Security Issues

Data Security

System Security

Big Data Issues

Autonomy and Control Issues

Smart Machine Issues

Smart Problems and You

Index

