

Python Internet of Things (IoT) Simulation Workshop - Connecting the World

Abstract



Oxford Dictionary defines Internet of Things (IoT) as “The interconnection via the Internet of computing devices embedded in everyday objects, enabling them to send and receive data”. Simply put, it is about connected and embedded devices that communicate to achieve its purpose through Internet network. These devices can also be called “smart objects” if it is incorporated with enough artificial intelligence to act/perform. These IoTs can range from connected coffee makers, cars, or sensors on cattle to connected machines in a production plant, etc. A new forecast from International Data Corporation (IDC) estimates that there will be 41.6 billion connected IoT devices, or “things,” generating 79.4 zettabytes (ZB) of data in 2025. The global market for Internet of things (IoT) end-user solutions reached 100 billion dollars in market revenue for the first time in 2017, and forecasted by statista.com that this figure will grow to around 1.6 trillion by 2025. This technology is contagious and will revolutionize consumer habits which impact the way we live, work and play.

This is a fundamental IoT awareness workshop which participants will learn about the latest IoT Technology and IoT Hardware/Software platform. This workshop is designed to simplifying the IoT learning experience as well as reducing the hardware ownership cost through an IoT hardware simulated development environment. The participants can apply the IoT knowledge by designing/prototyping a Home/Office IoT project at the end of the workshop. This is a fun and easy to pick up hands-on IoT workshop for beginners.

Learning Objectives

1. To learn IoT Fundamental
2. To learn IoT Development Platform
3. To learn IoT Simulation Tool
4. To design/prototype a Home/Office IoT Solution

Target Audience

For anyone who has an interest in learning IoT and designing/prototyping IoT home/office solution. This is good for working adults who have minimum or zero knowledge/experience in engineering or computer science fields..

Prerequisite

Ideally, the participants should have worked in any industry for a few years.

Training Setup/Methodology

This is an instructor led training to understand/learn about IoT and its application in a simulated IoT environment. Simple exercise, quiz and team project are designed to help participants to strengthen the learning experience.

Duration

2 Days 9:00am – 5:00pm

Content

1. Day1 AM– Internet Of Things (IoT) Fundamental:
 - a) Definition,
 - b) Communication Model,
 - c) Architecture, etc.
2. Day1 AM – Hardware Platform Overview (One or more of these platforms will be used in the workshop: Arduino, RPi, PyBoard, ESP32, etc):
 - a) Hardware Architecture Block Diagram,
 - b) GPIO Pins,
 - c) Sensors/Actuators, etc.
3. Day1 PM – Software Platform Overview
 - a) IDE
 - b) Programming language
4. Day1 PM – Simulation Tool Introduction (It can be Tinkercad or Wokwi or etc)
5. Day 2 AM – Sample IoT Application Code Walk-through
6. Day 2 AM/PM – Team Challenge: Design/Prototype a Home/Office IoT Project

Trainer Bio-data

Choo Fook Seng graduated from National University of Singapore (NUS) in 1990 with bachelor's degree of Electrical & Electronic Engineering. Later in 1996, he obtained Master of Science in Communication Software Management from University of Essex UK.



Fook Seng (born 1965) had over 20 years of proven track record in managing and delivering multi-million-dollar mobile phone (Motorola) and IA silicon/platform (Intel) software engineering projects. He demonstrated persuasive and influential skills in working together with various key stakeholders to deliver engineering projects on time and with quality. He is analytical, result oriented and customer oriented in resolving project/team problems. Fook Seng is proficient in driving organization continuous improvement initiatives by applying best practices of SEI CMM, ISO9001 and Agile SCRUM/LEAN to the organization design/development life cycle. The best accomplishment was achieving SEI CMM Level 4 certification for Motorola Singapore Design Center software team in 2001.

Fook Seng has a strong passion in employee training/coaching and has developed numerous courses to-date in the area of **Software Engineering Best Practices, Agile/Lean Project Management, Digital Transformation, Internet of Things with Arduino/RPi, Design Thinking, Maker Movement, 4th Industrial Transformation, Trust Leadership, AI Introduction, Data Science, Python Programming**, etc. During 2014-2009, he had contributed significantly to Intel Training/Development for Intel Malaysia employees:

1. Delivered 2 Intel University (IU) Training classes of **"Trust Matters"** for 30 Penang HR Payroll employees Sep'13 & 2 IU **"LEAN"** trainings for 12 Penang Embedded

Engineering employees H1'13 plus many more informal **"LEAN"** training/coaching.

2. Invited to share Best Known Method (BKM) at 1st/2nd **"Bright Spot" manager sessions** for >100 Malaysia Design Center (MDC) managers starting Nov'13.
3. Completed 7 **Lean/Value Stream Mapping (VSM)** training/workshop sessions for Penang Embedded Software Engineering Teams 2012. Delivered 2 **"Myself as Trust Builder"** trainings (Apr/Sep'11) benefiting 46 Intel Malaysian employees. Picked up **T-Coaching** certification and delivered 2 new Manager coaching sessions H2'11.

In addition, Fook Seng had championed **People Development programs** 2006-2008 for Intel Board Design Center Malaysia (BDCM) team which benefiting 200+ employees by implementing Manager Feedback Tool workout, Mentorship Pilot Run, Innovation culture building & numerous soft skill/technical trainings.

CERTIFICATIONS

- ☐ WIDE/IPv6 Forum Certified Network Engineer Level1/2 (since 2016)
- ☐ iNTACS Automotive SPICE/ISO 15504 Provisional Assessor Certification (2015-2021)
- ☐ Malaysia HRDF Trainer Certification (since 2014)
- ☐ ScrumAlliance.org Certified Scrum Master (since 2013)
- ☐ ScrumAlliance.org Certified Product Owner (since 2012)
- ☐ Intel/SSG Trainer of LEAN Overview (2012)
- ☐ Intel/SSG Trainer of LEAN Value Stream Mapping (VSM) (2012)
- ☐ Intel Trainer of Trust Matters (2012)
- ☐ Intel Certified 6 Sigma Green Belter (Jul 2012)
- ☐ Intel Certified Transition-Coach (2011)
- ☐ Intel Trainer of Building Trust (2008-2011) – Ken Blanchard Licensed Training
- ☐ Intel Certified Trainer of Outsourcing 101 (2007)
- ☐ Intel Certified Trainer of Code of Conduct (2007)
- ☐ Intel Trainer of Software Metric Overview (2004)
- ☐ Intel Trainer of CMMv1.2 Introduction (2004)
- ☐ Motorola Certified 6 Sigma Green Belter (Feb 2003)
- ☐ Motorola University's Certified Trainer for SEI Capability Maturity Model (CMM) Course (Mar 2002)
- ☐ Motorola Qualified SEI CMM Assessor (1999)
- ☐ Motorola Qualified Project Manager (1999)

Detail bio-data is also available online via QR scan below:

