Capstone Design Project 2

IoT Platform 2 Team Samulnori

Prof. KOH, SEOK JOO

Open-source electronic prototyping platform enabling users to create interactive electronic objects.
Introduce Team Member
Introduce 2 Team Member Detail list.

YANG CHANG YEOP
Manage Project
Design Project
Develop IOS
Develop Network

LEE JAE SEON
Document Manage
Develop Hardware
Develop WEB

HEO SOO HO
Develop Hardware
Document Manage

JUNG EI SEOK
Develop Android
Develop Hardware

All our knowledge begins with the senses.
All our knowledge begins with the senses.
One cogwheel moves the world.
Introduce IoT Market Research

By 2020, the global Internet (IoT) market will grow at a CAGR of 28.8% and the domestic IoT market will grow at a CAGR of 38.5%.

In the same period, the domestic IoT market size is expected to grow at a CAGR of 38.5% from KRW3.3 trillion to KRW17.1 trillion.

Smart Home, Smart City, and Connected Car as promising industries related to IoT.

The number of smart home-related devices connected to IoT is expected to increase from 7.03 million units in 2015 to 44.15 million units in 2020.

* Machina Research, STRACORP.
* YONHAP NEWS AGENCY, laecorp@yna.co.kr

All our knowledge begins with the senses.
Introduce Project Environment and Open Source.

DEVELOPMENT TOOL LIST

- XCODE
- Web Storm
- Visual Studio
- Android Studio

OPEN SOURCE LIST

- Philips Hue
- Raspberry-Pi
- Arduino
- Core ML
- Node.JS

DEVELOPMENT ENVIRONMENT LIST

- Source Tree Version 2.4.8.0 (Windows)
- Source Tree Version 2.4.8.0 (Mac)
- Swift Language 4.1
- Java SE Version Build 9+181 (Windows)
- Raspbian Stretch with desktop 4.14
- Raspbian Stretch lite 4.14
- PHP 7.1.16
- Git Version 2.14.2 (Windows)
- Git Version 2.14.2 (Mac)
- C++14 Standard Version

Redesigned. Reengineered, Re-everythinged
Introduce support Mobile Device list.

- iPhone X
- iPhone 6, 7, 8
- iPhone SE
- iPhone Plus version is also supported.

- Samsung
- LG
- Only Samsung and LG are supported.

Redesigned, Reengineered, Re-everythinged
Introduce Smart Box

Introduce Smart Box Structure and Function.

SMART BOX DIFFERENCE

- Lock operation using NFC.
- Image detection function using camera.
- Notification function using Philips HUE.
- Object analysis and person identification.

Redesigned. Reengineered, Re–everythinged
Redesigned. Reengineered, Re-everythinged
Introduce Project Structure (1–1)

Introduce Project Outline Structure.
Introduce Project Structure (2)

Introduce Project Outline Core ML Structure.

Core ML is *optimized for on-device performance*, which minimizes memory footprint and power consumption. Running strictly on the device ensures the privacy of user data and guarantees that your app remains functional and responsive *when a network connection is unavailable.*

**IOS CORE ML**

- No external network environment required.
- Object Classification and Detect Face.

Redesigned, Reengineered, Re–everythinged
Introduce Project Structure (3)

Introduce Project Outline Philips Hue Structure.

**PHI L I P S  H U E**

- RESTful interface over HTTP.
- Local URL
- JSON with UTF8 Encoding.

REMOTE CONTROL
HUE COLOR

CONTROL DETAIL
HUE COLOR

PHI L I P S  H U E

Send Event
Occur Event

Outs ide
01

Redesigned. Reengineered, Re–everythinged
Introduce Project Structure (4)

Introduce Project Outline Server & DB Structure.

PUSH SERVER

- TCP Socket over HTTP.
- Support variable environment.
- JSON with UTF8 Encoding.

EMERGENCY PUSH MESSAGE

CAMERA PUSH MESSAGE

Redesigned. Reengineered, Re-everythinged
Introduce Home Menu

Introduce Detail HOME Menu.

- Long Tap Gesture
- Control Swipe Graph
- Show Detail Graph
- Control Swipe Graph
Introduce Remote Menu

Introduce Detail Remote Menu.

[Control IR TV]

[Control IR Air Condition]

[Control HUE Color]
Introduce Outside Menu

Introduce Detail Outside Menu.

[Smart Box Padlock Open]

[Smart Box Padlock Close]

[Show Smart Box Camera]

[Connect TCP Server]
Introduce Setting Menu

Introduce Detail Setting Menu.

- Introduce Developer
- Open Source License
- Privacy Information Policy
- Send To E-mail

APP Setting

- Control APP Alarm
- Control Camera Picture
- Setting Smart Box Address
- Setting Socket Address

Smart notification with Core ML

Input Smart Box Server Address

Input Socket Server Address

APP Information Menu

Smart Box Server Address
All our knowledge begins with the senses, proceeds then to the understanding, and ends with reason. There is nothing higher than reason.
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The Raspberry Pi is a tiny and affordable computer that you can use to learn programming through fun, practical projects.

THANK YOU :)
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