

**King Monkut’s**

**University of Technology Thonburi**

AY2559/2016

Summer Internship Report

Semester S/2015

126 Prachautit, Thungkhru, Bangkok, Thailand



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**King Mongkut’s**

**University of Technology Thonburi**

Summer Internship Report

(Industrial Training Report)

Semester S/2015

By

Name: PHAM THI MAI PHUONG

Faculty: Engineering Department: Computer Engineering

Year: 3rd Section: D Student ID: 56070503447

Date Started: 30 May 2016 Date Finished: 22 July 2016

Total Number of hours: \_\_\_\_\_\_\_\_\_\_\_\_

Work Training Place’s Name: ESIEA Paris

Address: 9 Rue Vesale 75005 Paris

**1.General Information**

* 1. **General Information of the University**

**Key features**

**3** campuses (Paris/Ivry/Laval)

**58 years** of experience in teaching engineers

More than **7 200** Alumni

> **2** Specialized Masters

> **2** BADGEs (Assessment of Competency issued by *Grandes Ecoles*) from the CGE (Conference of *Grandes Écoles*)

More than **1 250** students

**2** main laboratories and  **1** exploratory

**24** researchers and **9**PhD students

**56** partner schools or universities in more than **20** countries

**13 months** of internshipin France and worldwide

**11 %** of graduates working abroad

Around **5 %**of entrepreneurs each year

Campuses:

ESIEA is present on two campuses : Paris and Laval. The degree awarded by ESIEA is the same regardless of your place of study.

Laval is a manageably-sized town and the people are friendly. The cost of accommodation is much more affordable than around Paris. In Ivry, ESIEA is just 2 minutes on foot from metro line 7, and a few stops away from the lively Latin Quarter.

**Paris Campus**

**ESIEA Paris** comprises our buildings in the 5th arrondissement and in Ivry-sur-Seine. The Ivry campus combines proximity to the capital with the economic dynamism of the various innovative urban campuses south of Paris.

**Laval Campus**

**ESIEA Wes**t is housed in an ultramodern and well-lit building, at the centre of the parc universitaire Laval-Changé. This building also houses ours twos laboratories.

Whether they live on campus or in the centre of town, students are never far from the school (15 minutes by bus, 30 minutes on foot or 5 minutes by car from the town centre, and a 10-minute walk from the railway station).

* 1. **General Information of the Faculty**
  2. **General Information of the Department/ Unit**

**2. Information of the Internship**

*2.1 Name of laboratory/unit and its functions.*

Operationnal Cryptology:

Virology Laboratory (CVO):

*2.2 Student’s Responsibilities*

**Android app developing to remote-control a RaspberryPi-based mobile platform**

The main goal of this internship is to develop an android app able to remote control a mobile platform based on a Raspberry Pi. To achieve such of goal, it will be necessary to develop software on both mobile (Linux) and remote controller (android) systems. Several versions of the software will be developed, in order to build a complete system step-by-step.

Such of mobile platform already exists, combining a two wheels kit (including motors) and a Raspberry Pi, actually controlled by a wireless joystick or a PC linked by serial cable.

The evolution of the platform may include different elements such as a USB mobile foam rockets launcher or a camera mounted on motorized pan-tilt.

\*Through out this internship, my responsibility has evolved into:

Android app developing to remote-control a RaspberryPi-based mobile platform

Web app developing to remote-control a RaspberryPi-based mobile platform

*And Virtual reality* developing to remote-control a RaspberryPi-based mobile platform

*2.3 Staff and Tools at the laboratory /unit.*

*STAFFS*

JOUANNY Louis

Chief executive, Groupe ESIEA

GAS Fatiha

Director of ESIEA's campus in Paris

LABOURDETTE Jean

Director of ESIEA's campus in Laval

WASTIN Florence

General Secretary, Groupe ESIEA

PISSOCHET Franck

Communication and Admissions Director, Groupe ESIEA

LOESER Jean-Marc

Head of Development, Groupe ESIEA

KATEB Dalila

Programs Manager and Director of Education

LOUBET Susan

Director of International Relations and Foreign Languages Teaching

FILIOL Éric

Research Supervisor - Information and System Security

KLINGER Evelyne

Research Supervisor - Digital Interactions, Health and Handicap

VINCENT Guyot

Ing., Ph.D

*Scientific Director*

*TOOLS*

*2.4 Code of practices/policies of the laboratory/ unit*

ESIEA works in synergy with its scientific and economic environment, and regularly adapts its courses and teaching methods to include more input from businesses and develop opportunities for its students and graduates.

With a wide and strong network, ESIEA trains creative, adaptable, innovative, internationally oriented and open to entrepreneurship engineers.

*2.5 Problems frequently experienced.*

*In general, I am happy with my staying. However, here are some problems I have encounter when conducting the internship:*

* *My professor did not have much time so it was very hard whenever I wanted to pose him some questions.*

**3. Comments and suggestions**

*3.1 Experiences gained during the internship.*

* *Hand-on experience on Linux and embedded system over working with Raspberry PI:*
* *Communicating with Linux only through command line*
* *Setting up raspberry pi’s apache web server*
* *Control raspberry pi’s camera – taking photos mode and video streaming mode*
* *Controlling motors with CGI*
* *Hand-on experience on developing Android app:*
* *Posting data to a remote server (Raspberry PI) in order to control it:*
* *Control left and right motor*
* *Control raspberry pi’s camera – taking photos mode and video streaming mode*
* *Retrieving data (the taken photos) from the remote server*
* *Saving photos to the android device’s local gallery*
* *Hand-on experience on web-design:*
* *Posting data to a remote server (Raspberry PI) in order to control it:*
* *Control left and right motor*
* *Control raspberry pi’s camera – taking photos mode and video streaming mode:*
  + *VLC plugin*
* *Retrieving data (the taken photos) from the remote server*
* *Hand-on experience on virtual reality. (taking the first steps in establishing a communication between raspberry PI and HTC Vive)*

*3.2 The way the partner university handled overseas interns.*

*ESIEA’s Professors and Staffs are very kind and helpful. Professor Vincent himself is a friendly man. He used to invite us with cakes for his 40th birthday. I remember when the fan in our room made a lot of noise, he said “you can’t work with this noise” and tried until he could fix it for us. My project was under the responsibility of Vincent Guyot, but Vincent’s coworker, Damien Gros, had helped me a lot as well. Vincent and Damien are both very skilled and I was very impressed. Professor Claire was very friendly, she often stopped by to say “hi” and even introduced us to her students in case we want some friends. Mrs. Gloria Fuertes was a true friend and mentor during our stay. She often showed us around Paris, and sometimes invited us with tea and coffee.*

*We were provided with a cozy 20 m^2 office on the second floor of the building with three computers, fans and heaters. The room was very close to Vincent’s office so it was very convenient to pop by and ask questions.*

*When we arrived, the school invited us to a Frenchy lunch with our professors and the staffs at International Affair. ESIEA provided us with a free navigo card (with this card, we could go anywhere in Paris and the surrounding area under unlimited time within 2 months). During our stay, they provided us with two cultural trips – one to visit Catacombs, the other was to visit. We also had a chance to visit Laval campus which was huge and much different from Paris campus.*

*3.3 Suggest solutions to the problems specified in 2.5.*

I think those are minor problems and they have tried to fix it. Vincent had asked his coworker to help me when he was not there (but his coworker could only answer technical questions related to Raspberry PI).

**Weekly Practical Training Record**

Name : Pham Thi Mai Phuong Student ID : 56070503447

Faculty : Engineering Department : Computer Engineering

Place of Practical Training : ESIEA Paris, 9 Rue Vesale 75005 Paris

Start From : 30 May 2016 To : 22 July 2016

Week 1

|  |  |  |
| --- | --- | --- |
| Date | Time | Activities/Assigned Work |
| 30/05/2016 | **03:00 – 5:15 PM** | **Visit the work place** | |
|  |  | **Meeting with Mrs. Fuertes (Office of International Affair)** | |
|  |  | **Assign the office and necessary documents** | |
| 31/05/2016 | **09:00 AM – 05:00 PM** | **Assign topic of project** | |
|  |  | **Collect information about the project** | |
|  |  | **Computer and software set up** | |
| 01/06/2016 | **08:00 AM – 06:00 PM** | **Study about Android Studio** | |
|  |  | **Working on the User Interface** | |
|  |  | * **Implement all buttons on click** | |
| 02/06/2016 | **08:00 AM – 06:00 PM** | **Set up web server** | |
|  |  | **Connect UI with web local server (myphpadmin)** | |
| 03/06/2016 | **08:00 AM – 06:00 PM** | **Connect UI with web local server (myphpadmin)** | |
| 04/06/2016 | **09:00 AM – 12:45 PM** | **Visit** | |
| 05/06/2016 | **10:00 AM – 01:30 PM** | **Visit museum** | |

Total hours: 47.5 hrs

Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Advisor)

Position\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Start From : 30 May 2016 To : 22 July 2016

Week 2

|  |  |  |
| --- | --- | --- |
| Date | Time | Activities/Assigned Work |
| 06/06/2016 | **08:00 AM – 06:00 PM** | **Study how to command Raspberry pi through web server** | |
| 07/06/2016 | **08:00 AM – 07:00 PM** | **Study how to implements buttons on touch** | |
|  |  | **Present the work to Professor Vincent** | |
|  |  | **Install Raspberry PI** | |
|  |  | **Implement on-touch buttons and test on android device** | |
| 08/06/2016 | **08:00 AM – 07:00 PM** | **Complete remote control board on android phone** | |
| 09/06/2016 | **08:00 AM – 07:00 PM** | **Install web server on raspberry PI** | |
| 10/06/2016 | **08:00 AM – 07:00 PM** | **Install web server on raspberry PI** | |
| 12/06/2016 | **07:30 PM – 11:00 PM** | **Watch “Le Roi Lear” at l’opera Garnier** | |

Total hours: 56.5 hrs

Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Advisor)

Position\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Start From : 30 May 2016 To : 22 July 2016

Week 3

|  |  |  |
| --- | --- | --- |
| Date | Time | Activities/Assigned Work |
| 13/06/2016 | **08:00 AM – 07:00 PM** | Established connection between android phone and web server | |
|  |  | Visit and have lunch at the student dining hall with Gloria Fuertes | |
| 14/06/2016 | **08:00 AM – 07:00 PM** | Established connection between android phone and web server | |
|  |  | Test on robot | |
| 15/06/2016 | **08:00 AM – 07:00 PM** | Android device is able to command robot to turn left, right, move forward and backward | |
|  |  | Have lunch with Mrs. Fuertes and our advisors | |
| 16/06/2016 | **08:00 AM – 07:00 PM** | Present the work to Vincent | |
|  |  | Task 1: control robot motion is checked | |
|  |  | Start working on task 2: Streaming video | |
|  |  | Install and test raspberry PI camera | |
| 17/06/2016 | **08:00 AM – 07:00 PM** | Write cgi program to post photo on raspberry pi web server | |
|  |  | Write cgi program to post video on raspberry pi web server | |
| 17/06/2016 | **11:00 AM – 4:00 PM** | Visit grand palais | |

Total hours: 60 hrs

Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Advisor)

Position\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Weekly Practical Training Record**

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Start From : 30 May 2016 To : 22 July 2016

Week 4

|  |  |  |
| --- | --- | --- |
| Date | Time | Activities/Assigned Work |
| 20/06/2016 | **08:00 AM – 07:00 PM** | Add code to stream live video on android studio | |
|  |  | Test whether android live stream is working with the pi’s server | |
|  |  | Present task 2 to Vincent | |
|  |  | Task 3: to develop a web app that remotely control the raspberry PI | |
| 21/06/2016 | **10:00 AM – 08:00 PM** | Problem encounter: live stream is causing a deadlook on android device (i.e. cannot control motors when camera is on)  Try to fix this problem | |
| 22/06/2016 | **10:00 AM – 08:00 PM** | Fix live stream problem | |
| 23/06/2016 | **10:00 AM – 05:00 PM** | Cultural tour: | |
|  |  | Visit Catacombs | |
|  |  | Have lunch at Café Oz Denfert Rochereau | |
|  |  | Ice cream at Amorino | |
|  |  | Visit Musée Carnavalet - Histoire de Paris | |
| 24/06/2016 | **09:00 AM – 06:00 PM** | Fix live stream problem | |
|  |  | Develop webpage interface – html code | |

Total hours: 47 hrs

Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Advisor)

Position\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Weekly Practical Training Record**

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Faculty : Engineering Department : Computer Engineering

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Start From : 30 May 2016 To : 22 July 2016

Week 5

|  |  |  |
| --- | --- | --- |
| Date | Time | Activities/Assigned Work |
| 27/06/2016 | **08:00 AM – 07:00 PM** | Fix live stream problem | |
|  |  | Develop webpage interface – css code | |
| 28/06/2016 | **08:00 AM – 07:00 PM** | Fix live stream problem | |
|  |  | Connect webpage interface with raspberry PI server | |
| 29/06/2016 | **08:00 AM – 07:00 PM** | Connect webpage interface with raspberry PI server | |
|  |  | Install VLC plug in for browser | |
| 30/06/2016 | **08:00 AM – 07:00 PM** | Fix live stream problem | |
| 01/07/2016 | **08:00 AM – 07:00 PM** | Working on internship report | |
|  |  | Task 4: Virtual reality – vive | |

Total hours: 55 hrs

Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Advisor)

Position\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Start From : 30 May 2016 To : 22 July 2016

Week 6

|  |  |  |
| --- | --- | --- |
| Date | Time | Activities/Assigned Work |
| 03/07/2016 | **08:00 AM – 07:00 PM** |  | |

Total hours: 55 hrs

Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Advisor)

Position\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_