**Capstone Design**

**Project Proposal**

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**Chung-Ang University**

**Team Groza**

**Dog Nose Recognition**

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**EXECUTIVE SUMMARY**

Team Name

Team Groza

Team Members

Kim Tae Hong (20132335)

Kim Chan Il (20150577)

Paeng Jin Wook (20154645)

Project Name

Dog Nose Recognition

Introduction

According to the Agriculture, Forestry and Livestock Quarantine Headquarters, 82,222 lost animals were collected last year. The number of cats was 21,929 (25.9%) and the other 1,150 (1.4%). The number of dogs was 59,333 (72.7%).

Like fingerprint in human side, we found out that the shape of dog’s nose is different in each of the dog. In other words, dog’s nose has their own identity. Using this, we thought we can give some help to abandoned dogs.

Furthermore, someone’s dog’s identification will be helpful in many other ways. For example in animal hospital, with the dog’s identification, veterinarian will easily get the past documentation of the dog.

Goals

First, we will take a picture of the dog’s nose through the Android application. The input data of the dog’s nose will be sent to the server, and then goes through the process of Pre-processing, feature detection, and Matching like fingerprint Recognition.

The Dog’s identification data will be saved in the database. Using this, the first goal of our project is **‘Verification’**. Application will verify that the picture of dog’s nose is my dog’s nose.

The second goal is **‘Identification’**. Application will get the image of the dog’s nose, compare with the whole data in the database, and find out whose dog it is.

We will make an application which recognize a dog’s nose using Android Studio. Input data(Dog’s nose) will be sent to server, performed pre-processing, feature detection and matching using OpenCV library and saved in database.

Project Outline

The detail of our project is as below.

• Server(2EX)

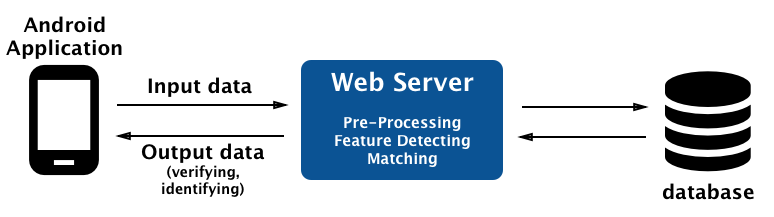
• Web Server based on AWS connecting app and logic.

• MySQL Database server for saving user’s special data (dog’s nose picture, picture’s keypoint.)

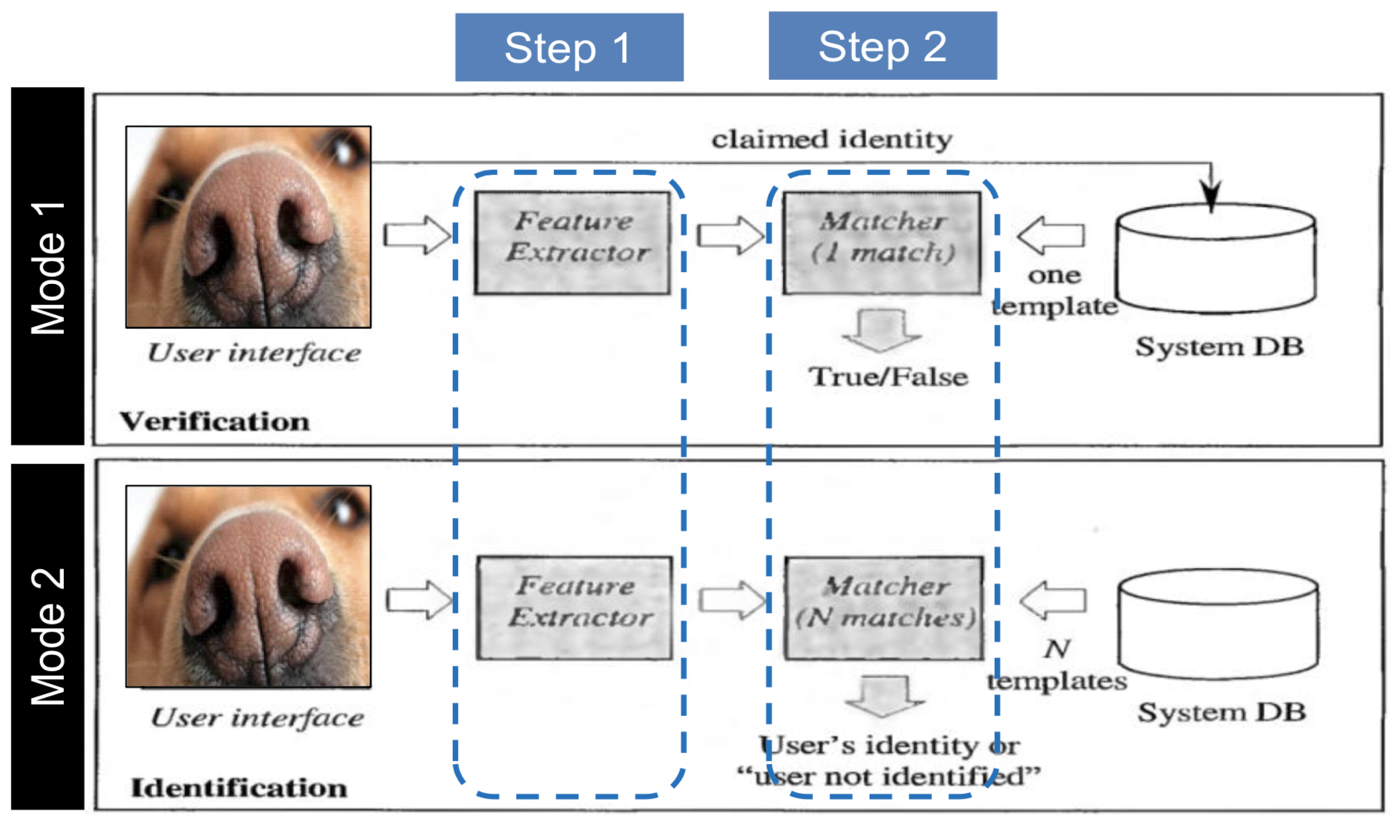
• Client(1EX)

• Application using Android Studio.(It can be changed to react-native compatible with Xcode)

Project Architecture



*<figure1. Project Architecture>*



*<figure2. Algorithm Process>*

Team Roles

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| --- | --- |
| Name | Part (Can be changed) |
| Kim Taehong | Server AWS, Node JS |
| Kim ChanIl | Application UI, Android Application Dev. |
| Paeng JinWook | Image Recognition Algorithm, Android Application Dev, Server |

Schedule

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| Week | To-Do (can be changed) |
| **Week 1** | Project goal setting |
| **Week 2** | Propose project |
| **Week 3** | Design: User Interface, System Architectures  Setting : Development Environment, |
| **Week 4** | Workshop for collecting data set( Dog cafe, park, .. etc)  Hong : Launching AWS server environment  Chan : Applying Design to Android Studio  Paeng : Develop Pre-processing Method and apply it to Fingerprint picture. |
| **Week 5** | Hong : build the basic code in the server  Chan : Develop Android Application  Paeng : Apply Pre-processing method to the dog’s nose picture using python opencv. |
| **Week 6** | Hong : Complete the developing basic Server Core  Chan : Develop Android Application  Paeng : Develop Feature Detecting & Matching |
| **Week 7** | Hong : connect the server and application  Chan : Complete Android Application  Paeng : Refactoring Code to get good performance |
| **Week 8** | Midterm Examination |
| **Week 9** | Hong : sync with server  Paeng : sync with client  Chan : Intermediate check of our development status |
| **Week 10** | Hong : complete the server and android application.  Paeng : complete the Application UI  Chan : complete the algorithm. |
| **Week 11** | We will meet together and feedback each other’s code. |
| **Week 12** | Hong : Implement improvement factor at Server  Paeng : Implement improvement factor at algorithm  Chan : Implement improvement factor at application UI |
| **Week 13** | First Demonstration and feedback |
| **Week 14** | First Revising our project |
| **Week 15** | Final Demonstration |
| **Week 16** | Final Examination |