Retrospective Document
Sprint-2

Work & Test Progress

Milestones:
1. Development of Our Own Neural Network for Classification - %40
2. Deploying Full Client-Server Architecture - %100
3. Translation of Image Processing Codes and Algorithms to Python Language - &100
4. Developing friendly user guide tutorial for Android application and fixing some bugs - %95

Finalized Tests as Part of the Milestones Planned for this Sprint:
- Android Device - Caffe Server Communication Test
- Caffe Tree Identification Model v4 Accuracy Test
- Trained Neural Network Accuracy Test
- Trained SVM Accuracy Test
- Android Device Gallery Bug Free Test

Team Progress

- Ilke Cugu - %100
- Eren Sener - %97
- Çağrı Erciyes - %95
- Emre Akın - %95
- Burak Balcı - %96

Left-overs (Backlog)

Following milestones could not be 100% completed.

1. Development of Our Own Neural Network for Classification
   - This milestone rejected by our team and was not successfully completed since we got insufficient training and testing accuracies from trained classifiers.

4. Developing friendly user guide tutorial for Android application and fixing some bugs
   - User guide tutorial is almost completed, but some design decisions can be changed in the next sprint.

Next Sprint

Milestone #1: Training of SVM and Merging Results of Caffe and SVM
During the sprint:
> Training of SVM will be completed.
> Classification results of SVM will be merged with Caffe Tree Identification Model’s results.
> Accuracy test will be run on the hybrid system.
At the end of the sprint:
We will have an ensemble classifier which uses both Caffe and SVM to determine the species of given leaves.

**Milestone #2: Construction of Enhanced Caffe Tree Identification Model**

**During the sprint:**
- A Python script, which produces 8 leaf images for a particular leaf image by rotating it 45 degrees in order to prevent accuracy loss due to variety of leaf positions in images, will be written.
- Leaf stem removal will be applied to our dataset.
- New leaf images will be gathered in order to reach 50 tree classes.
- New leaf images will be gathered in order to raise number of training images of current leaf classes (42 classes).
- ‘tree_identification_v5.caffemodel’ will be released.
- Accuracy test will be run on our Caffe Tree Identification Model.

At the end of the sprint:
- We will have an enhanced Caffe Tree Identification Model powered by our latest improvement ideas on identification process.

**Milestone #3: Deprecated camera hardware will be converted to camera2 hardware with new features in the Android application.**

During the sprint:
- Camera hardware that we are using for taking images will be converted to camera2 hardware.
- New features for camera will be added.

At the end of the sprint:
- Camera2 hardware will be ready to use.

**Milestone #4: Android design will be improved.**

During the sprint:
- Design of navigation view will be improved.
- Design of leaf results coming from server will be improved.
- My observation tab in the Android application will be improved with new features.

At the end of the sprint:
- We will have a better design.

**Milestone #5: Search for new features could be extracted from the leaf image.**

During the sprint:
- OpenCV shape descriptors will be examined.
- Feature extraction algorithms will be searched from articles.
- Available found features will be implemented by using OpenCV.

At the end of the sprint:
- We will have new features to add on our feature vector.

**Comments**

It was another perfect sprint for our team.

**Assistant’s Evaluation**

Assistant’s (Team Leader’s) comments regarding to this completed sprint.
Supervisors’s Evaluation

Supervisor’s (Team Leader’s) comments regarding to this completed sprint.