Detection of street signs in videos in a robot swarm

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Extracting and identifying traffic signals from the videos captured by Robot swarms to help in recognizing the pattern and benchmarking the performance of the setup.

Keywords: Cloud, I524

https://github.com/cloudmesh/sp17-i524/blob/master/project/S17-IO-3022/report/report.pdf

INTRODUCTION

For test purpose we created some mobile videos of traffic in a simulated traffic setup. All saved video files are uploaded on the Hadoop HDFS [1]. Batch processing is enabled on the input video files to search for key images, namely the red, green and yellow signals in the images using the OpenCV [2] library's Template matching functionality. Hadoop Map reduce [1] is used for processing and analysis of the images in the videos and getting a count of the how many red or green or yellow signals are encountered.

collectd [3] is used for benchmarking of the setup with Apache Hadoop using various sized data sets and number of nodes.

TECHNOLOGY USED

Technology Name	Purpose
Hadoop [1]	map reduce
OpenCV [2] Pattern matching in video	
ansible [4]	Automated deployment
collectd [3]	Collection of statistics of setup for benchmarking

PLAN

Week	Work Item	Sta
week1	Ansible deployment script for Hadoop setup	plan
week2	Ansible deployment script for OpenCV setup	plan
week3	Creating sample videos	plan
week4	OpenCV template matching script	plan
week5	Deployment and test of basic setup	plan
week6	Ansible deployment of collectd	plan
week7	Performance measurement of setup and report creation	plan
week8	Exploring different setup	plan

DESIGN

TBD

DEPLOYMENT

TBD

BENCHMARKING

TBD

DISCUSSION

TBD

CONCLUSION

TBD

ACKNOWLEDGEMENT

REFERENCES

[1] Apache Software Foundation, “Apache hadoop,” Web Page, 2014. [Online]. Available: http://hadoop.apache.org/
[2] itseez.com, “Opencv- open source computer vision,” Web Page, 2017. [Online]. Available: http://opencv.org/
[3] “collectd - the system statistics collection daemon,” Web Page. [Online]. Available: https://collectd.org/
[4] “Ansible, deploy apps. manage systems. crush complexity,” Web Page. [Online]. Available: https://www.ansible.com/