

APPLICATIONS OF DIGITAL IMAGE PROCESSING: TRAFFIC MONITORING AND CONTROL

LILI ZHU

1007174

CURRENT TRAFFIC SITUATION



Larger Population + More Vehicles
= More Complicated Road Conditions

Resource from: <http://www.bauhinia.org/index.php/zh-HK/analyses/389>
<http://www.autoreport.cn/industryrules/20160104/1806576112.html>

APPLICATIONS

- Real Time Traffic Light Control
- Automatic License Plate Recognition
- Traffic Incident Detector

REAL TIME TRAFFIC LIGHT CONTROL

Standard Traffic Light Control Systems:

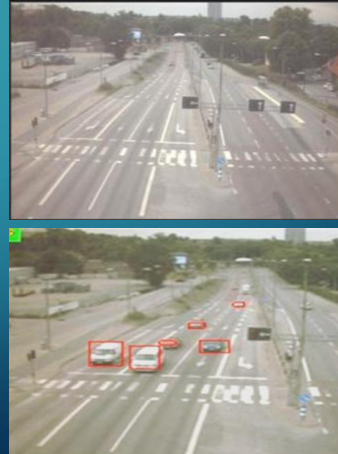


Resource from: <https://www.quora.com/Which-processors-or-microcontrollers-are-compatible-with-IoT-other-than-Raspberry-Pi-and-Broadcom-processors>
<http://www.instructables.com/id/Trigger-GREEN-Traffic-Lights/>

REAL TIME TRAFFIC LIGHT CONTROL

Traffic Light Control with Digital Image Processing:

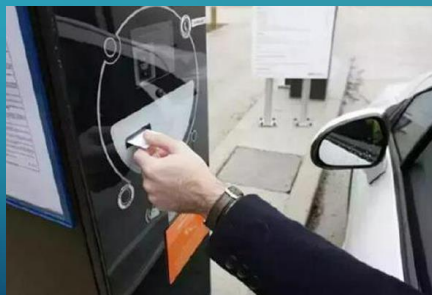
- Image acquisition
- RGB to gray conversion
- Image enhancement
- Image matching using edge detection



Resource from: REAL TIME TRAFFIC LIGHT CONTROL USING IMAGE PROCESSING. (2011). *Indian Journal of Computer Science and Engineering (IJCSE)*, Volume 2(Issue 1).

AUTOMATIC LICENSE PLATE RECOGNITION

Traditional Entrance of Parking lots:

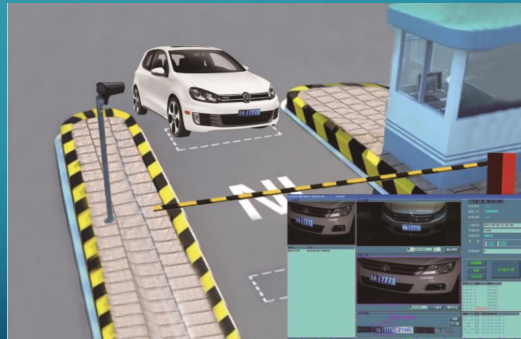


Resource from: <http://fensi.shangc.net/p/48117>
<http://www.wedalian.com/warticle-show-id-232637.htm>

AUTOMATIC LICENSE PLATE RECOGNITION

Entrance of Parking lots with DIP System:

- Capture image
- RGB to gray conversion
- Plate region extraction
- Segmentation
- Character recognition
- Comparison with database



Resource from: <http://www.versuit.com/product-item-24.html>

TRAFFIC INCIDENT DETECTOR

Normal Traffic Control Centre:



Resource from: <http://www.middleeasteye.net/news/saudi-open-biggest-security-surveillance-centre-middle-east-717616030>

TRAFFIC INCIDENT DETECTOR

Automated Traffic Surveillance Systems:



<https://www.youtube.com/watch?v=rhr49IC41xw>

<https://www.youtube.com/watch?v=pbcSNMUlhw>

Resource from: <http://www.trafficvision.com/>
https://ccas.clemson.edu/~sth/research/vehicle_tracking/results/

THANK YOU!

REFERENCES

- [1] REAL TIME TRAFFIC LIGHT CONTROL USING IMAGE PROCESSING. (2011). *Indian Journal of Computer Science and Engineering (IJCSE)*, Volume 2(Issue 1).
- [2] Image Processing Based Traffic Light Control. (2014). *International Journal of Science, Engineering and Technology Research (IJSETR)*, Volume 3(Issue 4).
- [3] Practical Design of an Automatic License Plate Recognition Using Image Processing Technique. (2014). *International Journal of Engineering and Innovative Technology (IJEIT)*, Volume 4(Issue 4).
- [4] <http://www.trafficvision.com/>