

Video-based License Plate Reader

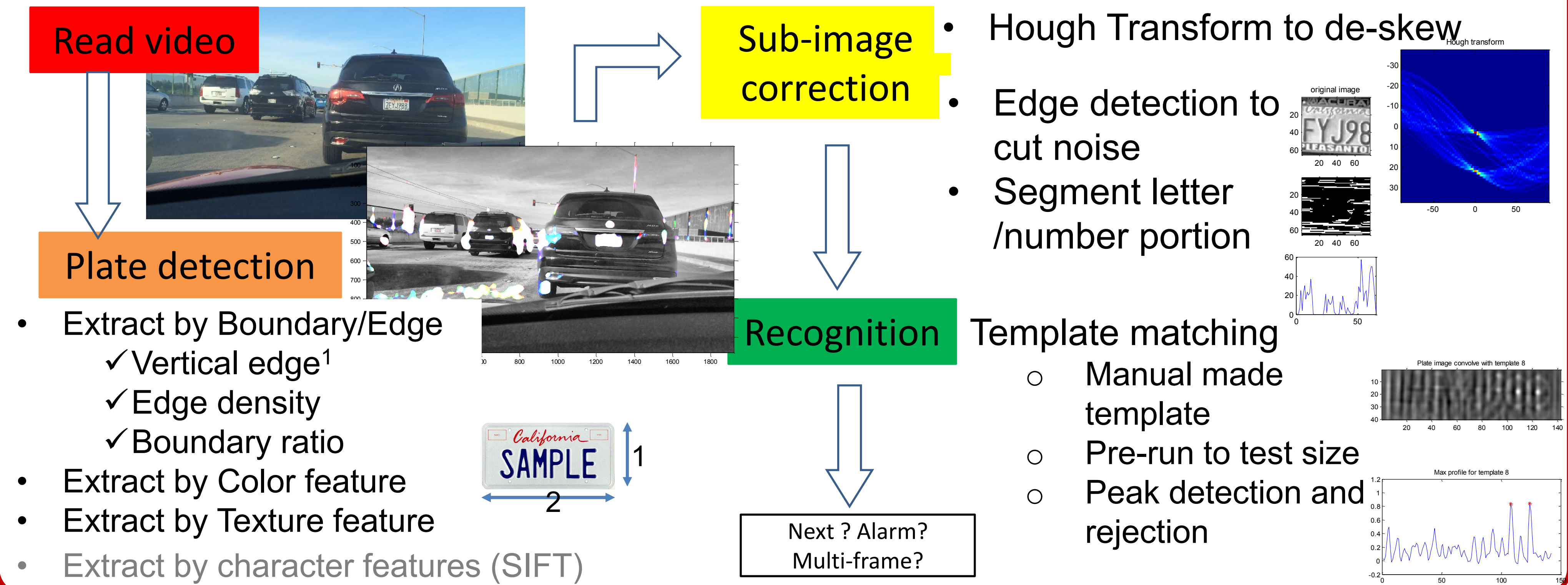
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Motivation

License plate reader, also known as Automatic number plate recognition (ANPR), was first invented in 1976 in at the Police Scientific Development Branch in the UK and now widely used in numerous real-life applications, such as traffic control, automatic toll collection etc. These system usually requires special hardware: 1 or more cameras with fixed viewing angle, field of view and so on. Many effort has been made to make ANPR more reliability and accurate nowadays. But it's also gets interest beyond the police forces as personal camera and the computing hardware gets cheaper. My project is to detect and recognize the license plate by analyzing videos from personal devices, such as cell phones and camera carried by hobby drones, which usually has low resolution or speed limit.

Method



Challenges



Experimental Results

Note, iphone was used to take all video samples.

- Results:** License plates were detected successfully and highlighted. The sub-image is corrected and shown as intermediate results. Final result is print and displayed.
- Evaluation:** frames, angles, illumination, odd characters can be addressed, although results depends heavily on resolution.
- Future work:** can reconstruct higher resolution signal from low resolution images² by combining neighbor frames to enhance signal and reliability.



Related Work and reference

- Shan Du et al. "Automatic License Plate Recognition (ALPR): A State-of-the-Art Review", IEEE Transactions on Circuits and Systems for Video Technology, Volume:23, Issue 2, Page 311, 2012
- K. V. Suresh et al., "Superresolution of license plates in real traffic videos," *IEEE Trans. Intell. Transp. Syst.*, vol. 8, no. 2, pp. 321–331, 2007.
- Previous project in this class in 2009 did the license plate detection with different method (no post processing and letter/number recognition).