TABLE I: Textural parameters for four types of vehicle logos.

Manufacturer	Entropy (± 10%)	Energy (± 20%)	Homogeneity (± 15%)
Peugeot	7455	2456	7675
Renault	4546	4657	5656
Samand	5565	5568	8854
Mazda	3125	5446	3435

TABLE II: Performance of two proposed methods for vehicle logo recognition.

	Image Matching		Textural Features	
	Precision(%)	Speed(s)	Precision(%)	Speed(s)
Peugeot	98.1	3.7	91.4	2.1
Renault	97.5	3.7	92.9	2.1
Samand	93.4	3.7	86.7	2.1
Mazda	96.0	3.7	89.1	2.1
Average	96.2	3.7	90.0	2.1

V. CONCLUSION

In this study, we proposed an automatic system for vehicle logo recognition. We used two methods to recognize the logos of interest; image matching and textural features. Experimental results showed that these two methods are capable to recognize four types of logo with an acceptable performance, 96% and 90% on average for image matching and textural features extraction methods, respectively. However, the textural features was less accurate than the image matching, it was about 80% faster than it. These two methods can be used for FPGA based programmable boards for increasing the speed of processes. The proposed system that presented in this article can be used as a commercial system for traffic monitoring, tracking stolen cars, managing parking toll, red-light violation enforcement, border and customs checkpoints, etc.

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