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Fire Detection using Image Processing

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Abstract: *To reduce loss of life and property from fire, an early warning is an imperative. A fire detection system based on light detection and analysis is proposed in the paper. This system uses HSV and YCbCr color models with given conditions to separate orange, yellow, and high brightness light from background and ambient light. Fire growth is analysed and calculated based on frame differences. The overall accuracy from the experiments has been greater than 90%.*

Keywords: Fire Detection; Flame Detection Fire Video; Conflagration; Color Segmentation; Image Processing

REFERENCES

[1]. M. Li, W. Xu, K. Xu, J. Fan, and D. Hou, "Review of fire detection technologies based on video image", JATIT, vol. 49, no. 2, pp. 700-707, Mar. 2013.
[2]. W. Wenhao, Z. Hong, "Fire detection based on flame color and area", 2012 IEEE Int. Conf. on Computer Science and Automation Engineering, pp. 222-226, 2012.
[3]. C. Juan, H. Yaping, W. Jian, "Multi-feature fusion based fast video flame detection", Building and Environment, vol. 45, pp. 1113-1122, 2010.
[4]. T. Celik, and H. Demirel, "Fire detection in video sequences using a generic color model", Fire Safety J, 2008, doi:10.1016/j.firesaf.2008.05.005
[5]. Z. Junying, and D. Xiaoxiao, "Image recognition technology in fire detection", Fire Science and Technology, vol. 26, no. 4, pp. 417-420, 2007.
[6]. Y. Y. Yan, S. B. Gao, H. Y. Wang, and Z. B. Guo, "Contour extraction of flame for fire detection", Advanced Materials Research, Manufacturing Science and Technology, vol, 383-390, pp. 1106-1110, 2012.
[7]. J. Rong, D. Zhou, W. Yao, W. Gao, J. Chen, and J. Wang, "Fire flame detection based on GICA and target tracking", Optics & Laser Technology, vol. 47, pp. 283-291, 2013.
[8]. W. Lei, and J. Liu, "Early fire detection in coalmine based on video processing", Advances in Intelligent Systems and Computing, vol. 181, pp. 239-245, 2013
[9]. T. Celik, "Fast and efficient method for fire detection using image processing", ETRI Journal, vol. 32, no. 6, pp. 811-890, 2010.
[10]. R. C. Gonzalez, and R. E. Wood, "Digital image processing", Prentice Hall, 3rd edition, 2007.
[11]. R. C. Gonzalez, R. E. Wood, and S. L. Eddins, "Digital image processing using Matlab", Gatemark Publishing, 2nd edition, 200