# Housebreaker Detection by Analyzing Moving Light Sources in a Dark Indoor Environment


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**ABSTRACT**

Nowadays, enterprises and general families pay much attention to the protection of their own property day by day. Owing to the insufficiency of light and sight, the crime rate is rising during the night. Therefore, it is necessary to monitor secured spaces by installing an intelligent video surveillance system. Most surveillance systems use infrared cameras or night vision cameras in a dark environment. These expensive equipments are not available for general families. In general, housebreakers will carry mobile light sources and broke into one ’ s house at night. In this research, we utilize popular and inexpensive digital web camera to implement a computer vision-based housebreaker detection system by analyzing moving light sources in a dark indoor environment. We extract 3525 frame images from 30 video files in our experiments. Besides the detection of light source position(accuracy rate：98.1%) and type(accuracy rate：97.8%), the holder location prediction(accuracy rate：94.6%) and the legitimacy of moving path are also adapted to evaluate our system. Acceptable experimental results prove the feasibility and usefulness of the proposed method.



Keywords : background subtraction ; motion detection ; night environment ; video surveillance


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