An Investigation Study on Automatic Crack Detection Using Image Processing Techniques

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ABSTRACT

Cracks in concrete structures are of common occurrence. A building component develops cracks whenever stress in the component exceeds its strength. Cracks are classified into structural and non-structural categories. The structural ones are due to faulty design, faulty construction, or overloading which may endanger the safety of buildings. The non-structural cracks are due to internally induced stresses. There are numerous causes of cracking in concrete, but most instances are related more to concrete specification and construction practices than to stresses due to induced forces. Crack detection is done manually, it is an extremely time-consuming process. It is not practical since elements must be examined regularly, and it will take a long time for human capital. Moving ahead the concept of automatic detection has been created a footprint in the area of detection and measurement of concrete cracks. In the annals of automatic detection, the phenomenon of artificial neural networks coupled with machine learning forms the backbone in the line with this application. This paper addresses the fundamentals and recent advancements in the domain of automatic detection of cracks in concrete.

Keywords: *Construction Materials, Machine learning, Crack, Manual inspection, Image-Based detection*