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Wireless Sensor Networks To Monitor Crack Growth on Bridges

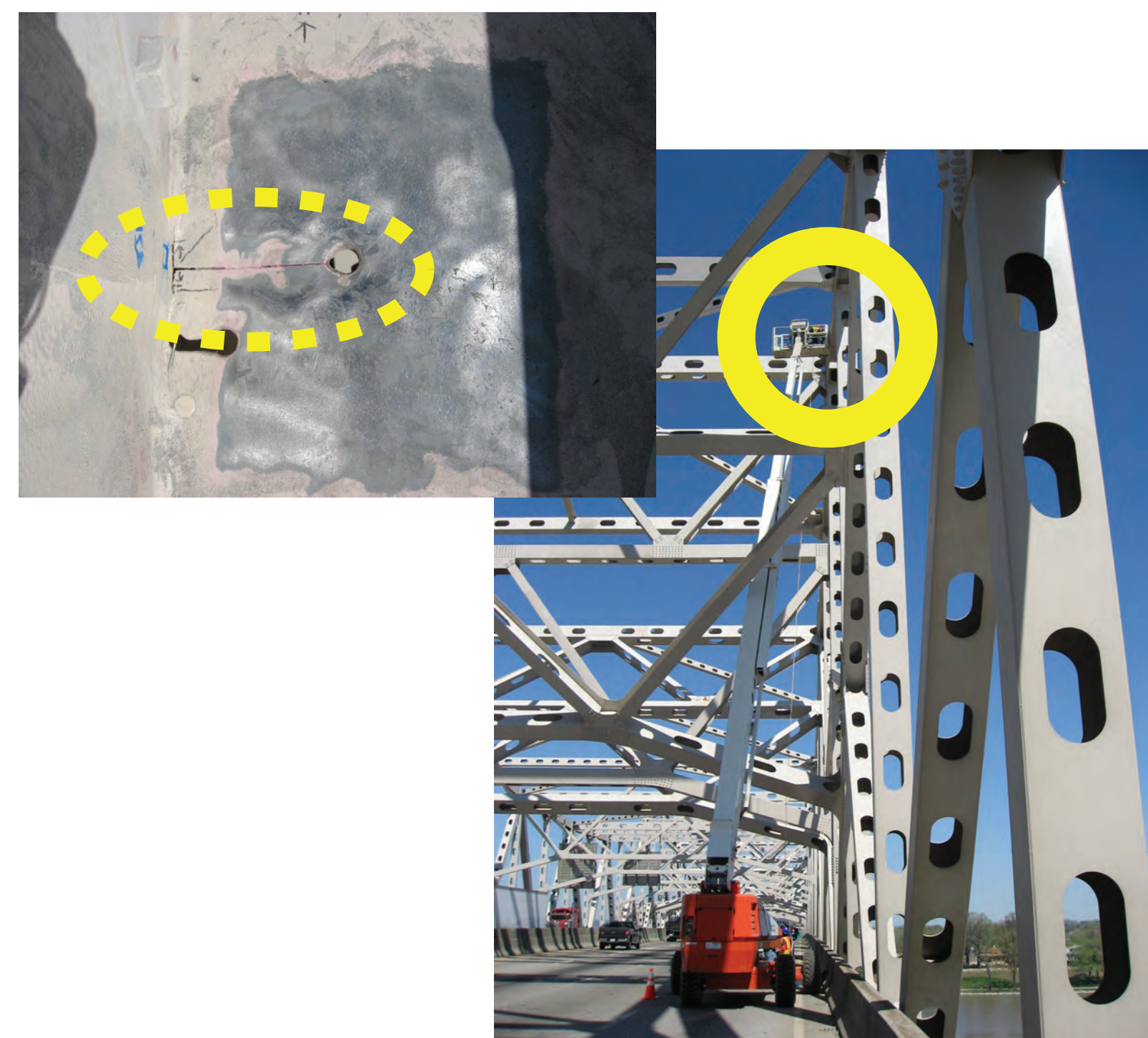
Introduction

- Steel bridges have cracks
- Crack growth tracked by human inspection
- Inspections can be two years apart
- Physical access to cracks may be difficult

Key Points

- Wireless Sensor networks can track crack growth
- More often
- With greater accuracy and repeatability
- Inexpensively
- Automatically
- Conveniently

AND SOUND AN ALARM WHEN A CRACK GROWS

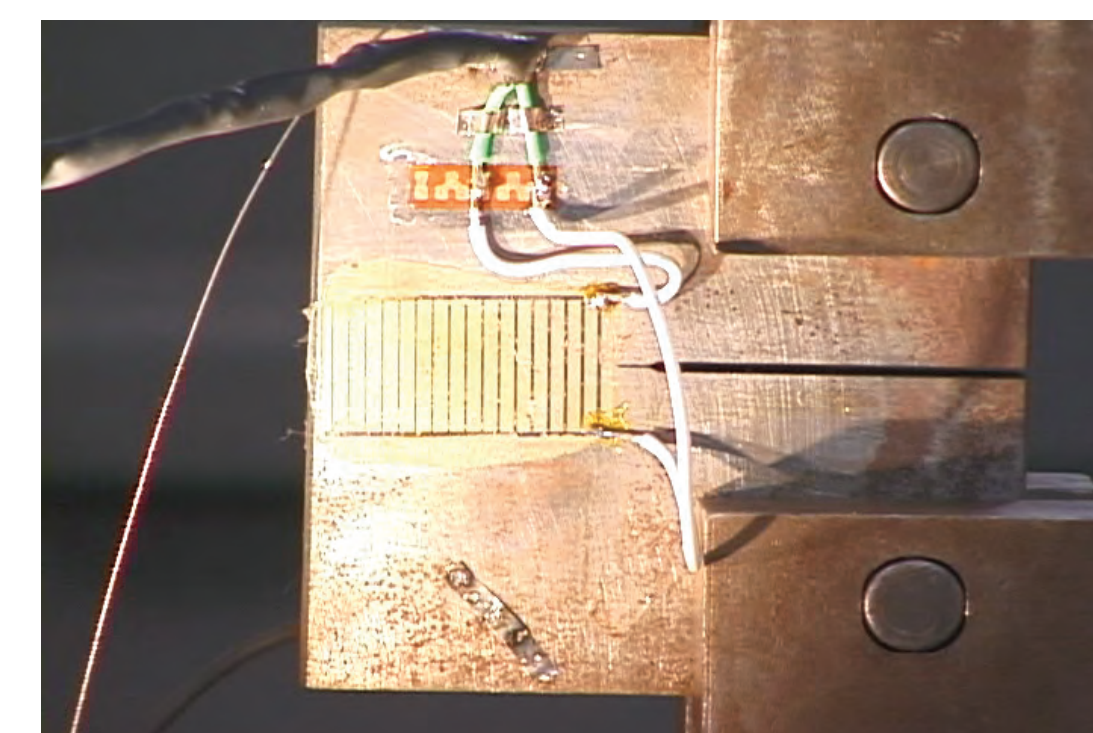


The Wireless Sensor Network



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Experimental Results



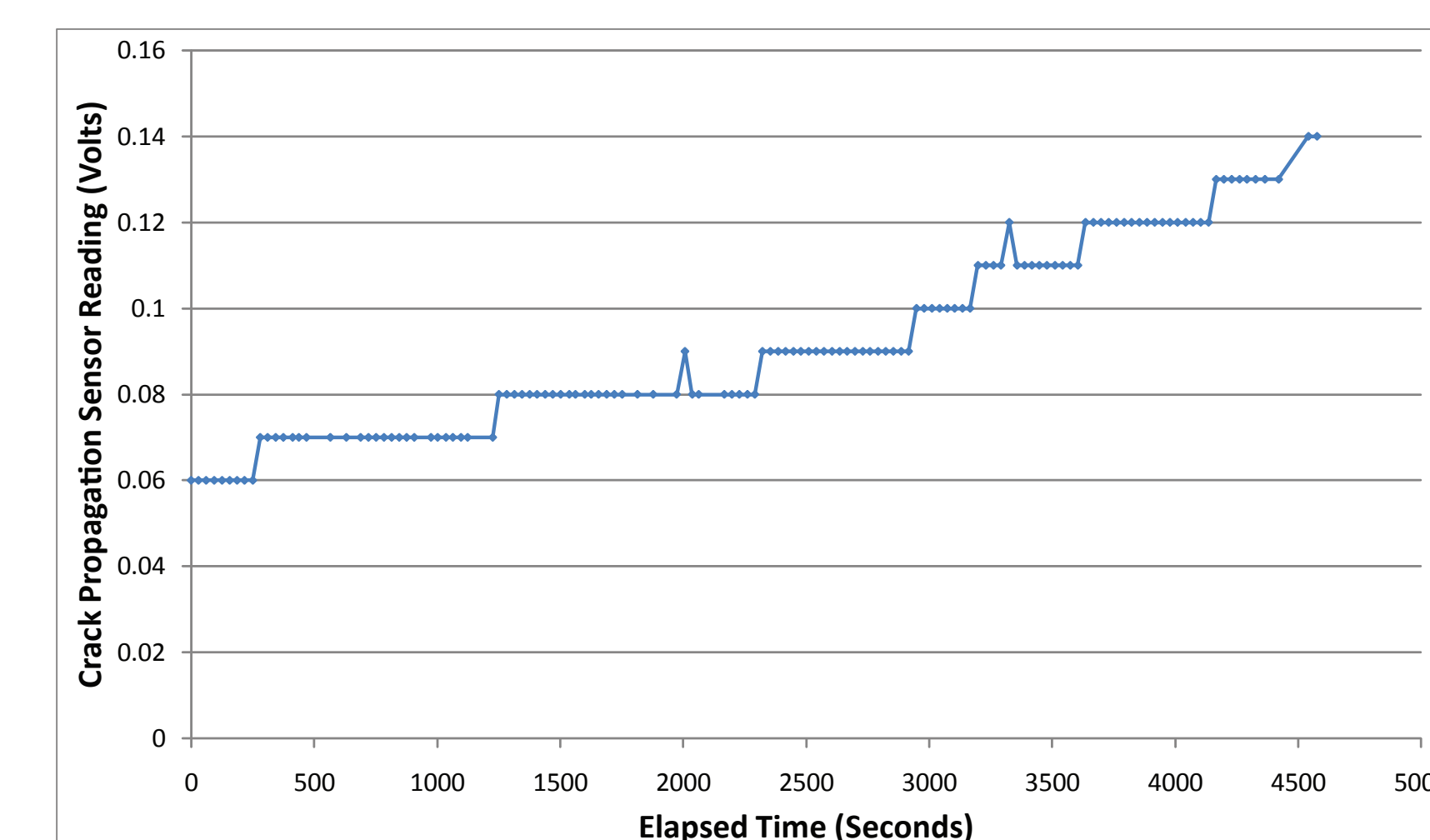
0 rungs broken



6 rungs broken

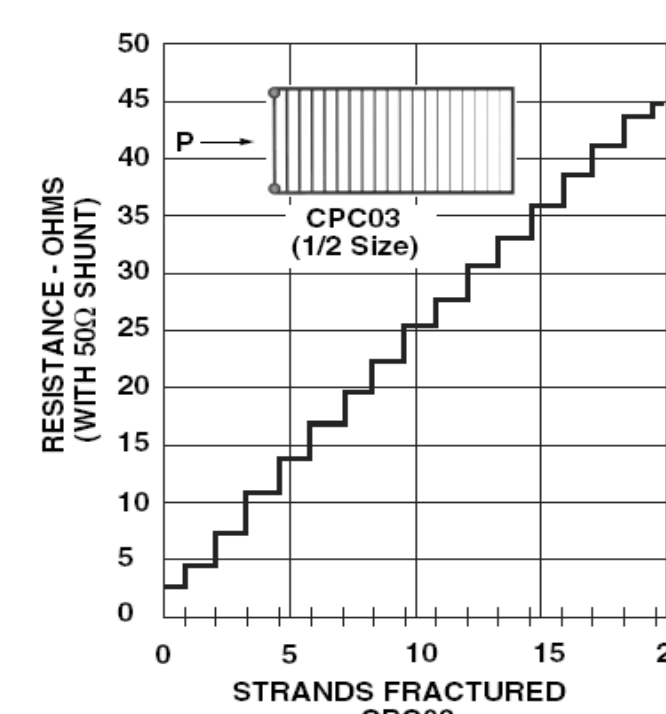
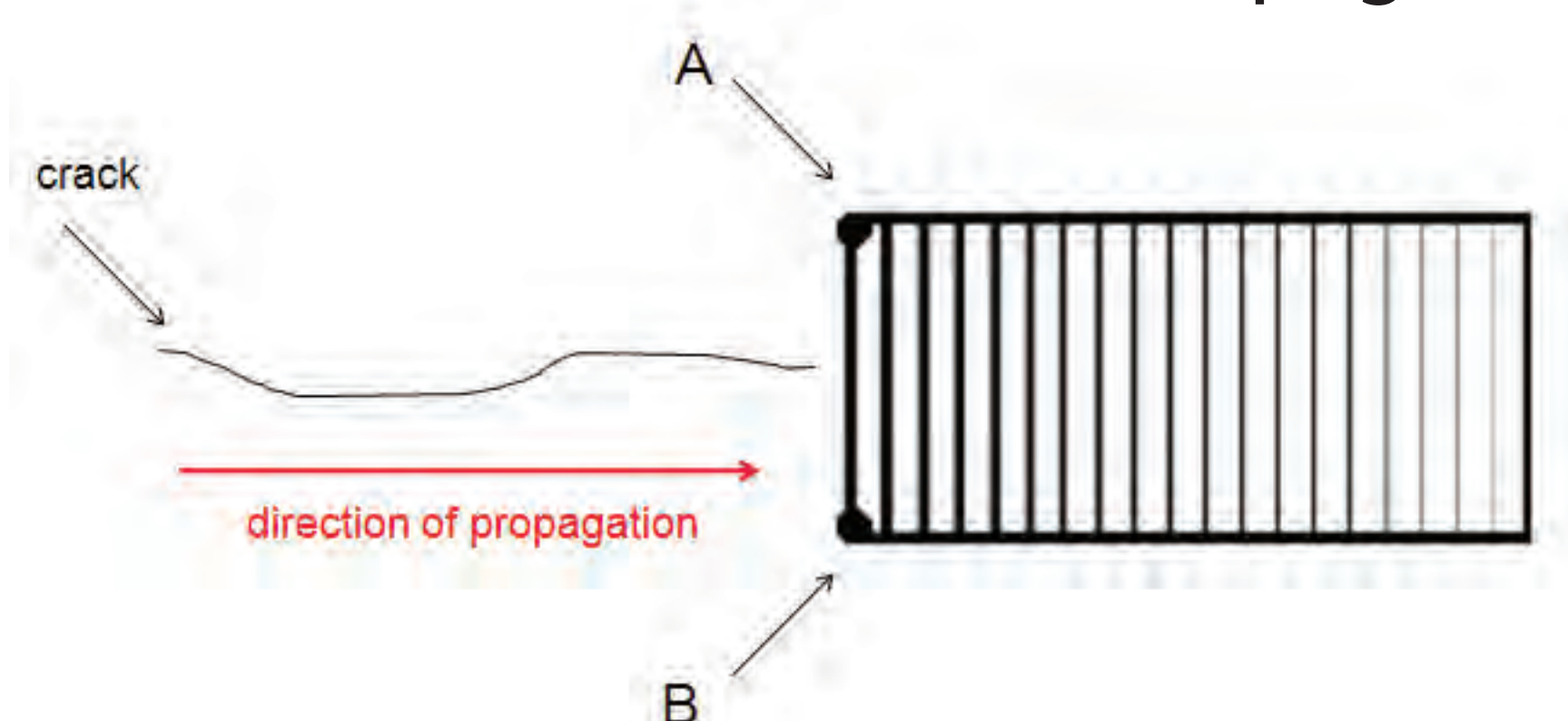


8 rungs broken



Conclusion: A wireless sensor network can measure the propagation of a crack through steel.

Crack Propagation Sensor



A crack propagation pattern's resistance between points A and B will increase as the crack propagates through it.