

## Mobile Contactless Device for Fast Corrosion Assessment of Reinforced Concrete

**R**esearchers at the University of South Florida have invented a mobile contactless probe to analyze defects and corrosion within reinforced concrete structures.

Current systems used to measure corrosion of reinforced concrete structures such as bridges have many setbacks. Current devices are large, rendering transportation and positioning expensive concerns. Current methods yield inaccurate measurements, particularly on aged buildings. They require wetting the concrete for extended periods of time to increase accuracy, causing prolonged lane closures for testing. The temporal and financial investment required by the process leads to fewer structure evaluations. There is a need for a small, portable, accurate and fast device to measure corrosions of large structures.

USF inventors have created a novel contactless portable device for fast and accurate corrosion assessment. It operates by measuring concrete surface potentials without contact using vibrating Kelvin probes to identify and map corrosion in real time. This new device is user-friendly, small and compact, making it easier to transport and position. It provides accurate results instantly, without the need to wet the surface and prolonged lane closures. These advantages, in turn, will cut labor costs and time, allowing regular necessary structure inspections. A working prototype shows that this technology gives more accurate and reproducible results than those obtained by current surface-wetting systems. The measurement accuracy does not diminish with structure age. This device may be mounted on vehicles for rapid measurement of large areas. The technology may be used in the construction industry to monitor aging infrastructure.

### ADVANTAGES:

- Small portable design
- High accuracy
- Instant measurements
- Drastic cost reduction
- Nondestructive testing

*Low-Cost, Quick and Accurate Corrosion Measurement In Reinforced Concrete*



*Working Prototype in Use on the Sunshine Skyway Fishing Pier*

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