

Bridge Cracks Monitoring: Detection, Measurement, and Comparison Using Augmented Reality Dataset

Dataset available at: https://digitalcommons.lsu.edu/transet_data/125

(This dataset supports report **Bridge Cracks Monitoring: Detection, Measurement, and Comparison Using Augmented Reality**)

This U.S. Department of Transportation-funded dataset is preserved by the Transportation Consortium of South-Central States (TRAN-SET) in the LSU Digital Commons Repository (<https://digitalcommons.lsu.edu>), and is available at https://digitalcommons.lsu.edu/transet_data/125

The related final report **Bridge Cracks Monitoring: Detection, Measurement, and Comparison Using Augmented Reality**, is available from the National Transportation Library's Digital Repository at <https://rosap.ntl.bts.gov/view/dot/61831>.

Metadata from the LSU Digital Commons Repository record:

Authors:

- Fernando Moreu, University of New Mexico
- Kaveh Malek

Document Type: Data Set

Publication Date: 8-2021

Abstract: Crack occurrence and propagation are among critical factors that affect the performance and lifespan of civil infrastructures such as bridges. Consequently, numerous crack detection and measurement methods have been proposed and developed in the recent decades in the areas of Structural Health Monitoring and non-destructive testing. Many novel technologies have emerged with the potential to overcome the limitations of the presented techniques of crack detection and characterization. Crack detection and characterization method used in this research lies in supplementing human visual inspection capabilities in a systematic manner through an appropriate level of automation. The Augmented Reality (AR) tool developed in this project allows a user to perform tasks in a real-world environment while visually receiving supplementary 3D computer-generated information to support the tasks. More specifically, we developed a crack detection/characterization tool in this research and deployed it in Microsoft HoloLens smart glasses. This AR tool provides the user with automatic data collection capability through AR headset camera and is a means of hands-free data sharing for inspectors while conducting their normal inspection. We conducted several laboratory and field experiments by which we evaluated the effectiveness of the developed crack detection and measurement system. The result confirm that the AR tool devised in this project has the potential to help the inspection process in terms of time, comfort and accuracy.

Comments: Tran-SET Project: 20STUNM33

Recommended citation:

Moreu, F., & Malek, K. (2021). Bridge Cracks Monitoring: Detection, Measurement, and Comparison using Augmented Reality. Retrieved from https://digitalcommons.lsu.edu/transet_data/125

Dataset description:

This dataset contains 1 file described below.

Moreu_Data_Collection_January_2022_final.xlsx:

The .xlsx and .xls file types are Microsoft Excel files, which can be opened with Excel, and other free available software, such as OpenRefine.

National Transportation Library (NTL) Curation Note:

As this dataset is preserved in a repository outside U.S. DOT control, as allowed by the U.S. DOT's Public Access Plan (<https://ntl.bts.gov/public-access>) Section 7.4.2 Data, the NTL staff has performed *NO* additional curation actions on this dataset. NTL staff last accessed this dataset at https://digitalcommons.lsu.edu/transet_data/125 on 2022-05-24. If, in the future, you have trouble accessing this dataset at the host repository, please email NTLDataCurator@dot.gov describing your problem. NTL staff will do its best to assist you at that time.