

Real-Time Early Detection and Monitoring of Flooding Using Low-Cost Highly Sensitive Ultrasound Sensing of Water Level Dataset

Dataset available at: <https://doi.org/10.5281/zenodo.4270661>

(This dataset supports report **Real-Time Early Detection and Monitoring of Flooding Using Low-Cost Highly Sensitivity Ultrasound Sensing of Water Level**)

This U.S. Department of Transportation-funded dataset is preserved in the Zenodo Repository (<https://zenodo.org/>), and is available at <https://doi.org/10.5281/zenodo.4270661>

The related final report **Real-Time Early Detection and Monitoring of Flooding Using Low-Cost Highly Sensitivity Ultrasound Sensing of Water Level**, is available from the National Transportation Library's Digital Repository at <https://rosap.ntl.bts.gov/view/dot/58927>.

Metadata from the Zenodo Repository record:

Title: Real-Time Early Detection and Monitoring of Flooding Using Low-Cost Highly Sensitive Ultrasound Sensing of Water Level

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Description: Flooding poses safety hazards to motorists, emergency and maintenance crews and may cause costly damage to transportation infrastructure and its operation. Flash flooding, in particular, causes the most flood-related deaths According to NOAA, in 2017 alone, flash flooding also caused \$60.7 billion worth of economic damage. Low-water crossings are among the first places where deaths and significant damages to vehicles occur during flooding. With flash flooding, when a critical corridor is blocked by a high level of water, it affects the safety of the general public. To keep the critical corridors open as long as possible, and to minimize losses from flooding, accurate early detection of the rising water level is essential. The flood level detection system has to have flood stage maps in the geographic information system for the street-, roadway-, and critical-freight corridors. This area encompasses public roads in urbanized areas that provide access and connection to the primary roads for ports, public transportation or other transportation facilities. The main goal of this project is to develop cost-effective and high efficient solar-powered water level detection units and implement real-time water level monitoring for water both pavement and river stream. The project was performed with three objectives: to develop the low cost reliable real-time data of the ultrasound water level detection system, increasing its data reliability and resolution; 2) to improve an energy-saving processing system; and to deploy the ultrasound water level detection system and real-time monitoring system for water both pavement and river stream for safety measures. The obtained results and findings imply the developed monitoring system can present reliable water level data with efficient power and data transmission system.

Publication Date: October 1, 2020

DOI: 10.5281/zenodo.4270661

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Recommended citation:

Ham, Suyun, Noh, Seongjin, Seo, Dong-Jun, Sanggoo Kang, & Dafnik Saril Kumar David. (2020). Real-Time Early Detection and Monitoring of Flooding Using Low-Cost Highly

Sensitive Ultrasound Sensing of Water Level [Data set]. Zenodo.
<https://doi.org/10.5281/zenodo.4270661>

Dataset description:

This dataset contains 1 file described below.

19SAUTA03_Data.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://doi.org/10.5281/zenodo.4270661> on 2022-05-05. 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.