3D Virtualization of the Aircraft Wreckage of TWA Flight 800

VIRTUAL STUDENT FEDERAL SERVICE

Project Title	3D Virtualization of the Aircraft Wreckage of TWA Flight 800
Project Summary	Document the wreckage of a major airplane crash using three-dimensional (3D) laser scanning and photogrammetry; create a database of the scanned information and a presentation to allow students in accident investigation courses to view and (if possible) interact with a 3D representation of the data.
Country	United States

Project Description

Trans World Airlines Flight 800 (TWA 800) was a Boeing 747-100 that exploded and crashed into the Atlantic Ocean near East Moriches, New York on July 17, 1996, at about 8:31 p.m. EDT. The accident occurred 12 minutes after takeoff from New York's John F. Kennedy International Airport on a scheduled international passenger flight to Rome, with a stopover in Paris. All 230 people on board died in the crash.

As part of the investigation by the National Transportation Safety Board (NTSB), part of the fuselage of TWA 800 was reconstructed and mounted on a framework. The reconstructed fuselage currently resides at the NTSB Training Center in Ashburn, Virginia, and is used in courses to instruct accident investigators from the United States and around the world in wreckage analysis and related concepts.

The NTSB would like to document the wreckage using three-dimensional (3D) laser scanning and photogrammetry. The goal of the project would be to create a database with the scanned information along with some form of presentation that would allow students in accident investigation courses to view and (if possible) interact with a 3D representation of the data.

The Intern would assemble and register individual laser scans to form a complete representation of the reconstructed wreckage, including photographs from stationary and drone-mounted cameras. The Intern would determine options to merge the laser scans and photogrammetry results, and to create fly-through videos to display the results. The Intern would research options (such as 3D .pdf files) to allow students to interact with the data through a website (the Smithsonian Museum has one method for doing this) and propose an approach(es) for approval by NTSB. Once the plan is approved, license(s) for software needed would be provided by the NTSB.

Laser scans and the photographs used for photogrammetry would be acquired by NTSB staff.

Required Skills or Interests

Skill(s)

Data visualization

Additional Information

The National Transportation Safety Board is an independent federal agency charged with investigating every civil aviation accident in the United States and selected accidents in other modes of transportation: highway, marine, railroad and transit, and pipeline.

For more information on the investigation of TWA 800, see:
https://www.ntsb.gov/investigations/AccidentReports/Reports/AAR0003.pdf

For more information on the NTSB Training Center, visit:
https://www.ntsb.gov/Training_Center/Pages/app_info.aspx

Language Requirements

None