



Silesian University of Technology as a Center for Modern Education Based on Research and Innovation

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PBL – Project Based Learning	
Title:	Unmanned Aerial Platform Dedicated to Diagnostic Tasks
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The aim of the project is to build an unmanned aerial vehicle (UAV) capable of performing diagnostics of large building structures, especially bridges. The carrier of the inspection device is a UAV with a docking module capable of adhering to a surface of any texture. We focus on the concrete constructions, in particular the bridges which are reinforced by the FRP tapes (composite reinforcement tapes). The drone is equipped with a suction cups docking module that allows it to be attached to the bottom surface of a hard-to-reach structure element. This tool is designed to inventory structural damage using a mounted inspection camera. In the case of structures reinforced with FRP overlays, the aim is to detect places where the reinforcing laminate has detached from the surface of the reinforced element, using an IR camera integrated with a vision camera as well as humidity, temperature and pH sensors, which would enable a comprehensive assessment of the hazards of building structures of any type. Work is also underway to integrate the collected data into the numerical construction model BIM (Building Information Modeling).

