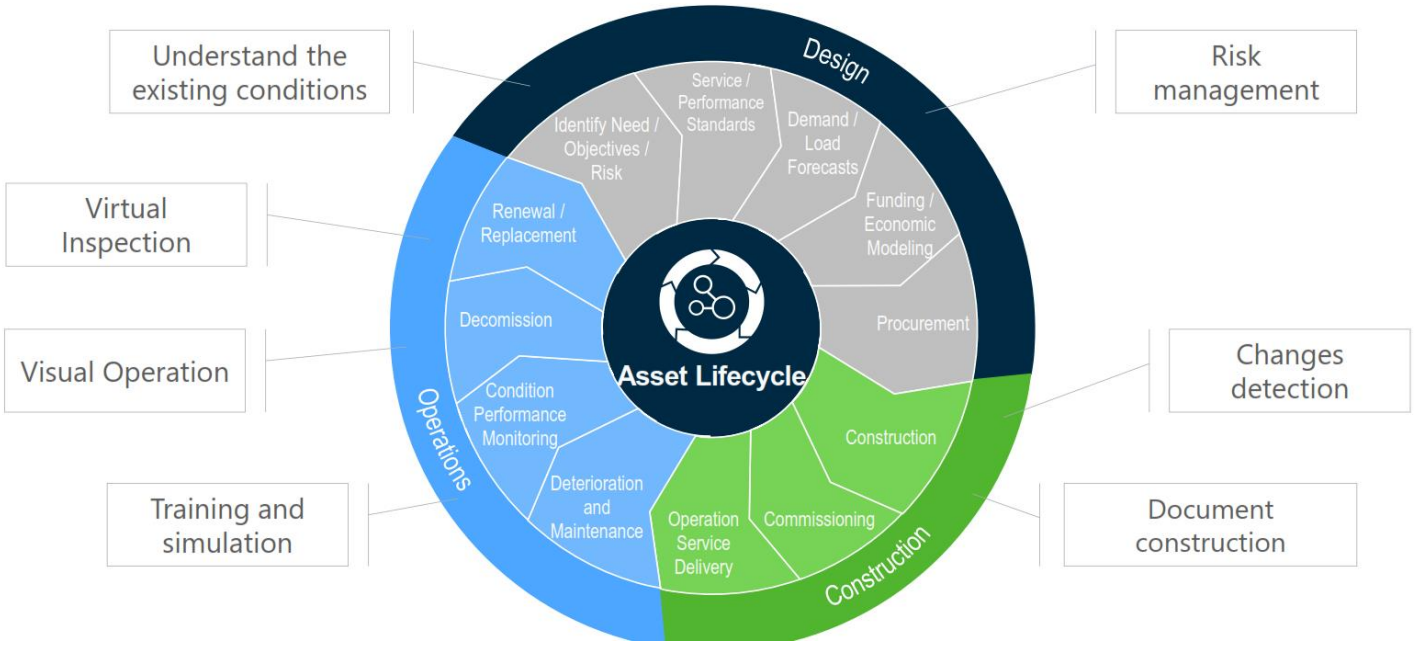
AerialZeus
INTELLIGENT ENGINEERING

How to improve Design, Construction & Maintenance Operations

The approach here presented is innovative, comprehensive and efficient for the inspection and monitoring of Construction projects. This methodology will assist with Design, Construction and Maintenance Operations,



A multi-modal data acquisition approach is recommended to comprehensively monitor above-ground construction activities,

1. *Aerial High-Resolution* photography acquisition, via drone, to document progress of earthwork, fencing and landscaping,

Share Drone Data With Your Team

Push drone data—orthomosaics, point clouds, digital elevation models, and more—into BIM 360, so they're easily accessible in tools like Revit, BIM 360 Glue and Field, and more.

Overlay Up-to-Date Design Files

Pull your CAD and PDF design files from BIM 360 into online platform and overlay them onto your orthomosaics, so you can compare design to reality and spot mistakes. If a design file changes in BIM 360 it will be automatically updated online.

Solve Problems in the Field

Spot a problem on your jobsite that needs to be fixed? Create issues directly on your orthomosaic online and push them to BIM 360 Field, making it easy to collaborate with your field personnel and resolve issues quickly and effectively.

2. *Ground High Resolution* photography and Laser Scanning acquisition for inspection on structural concrete, masonry, structural steel, galvanizing, welding, electrical, plumbing, conduit systems, HVAC, painting, plastering, sealants, fire safety, sheet metal, drywall, shoring, hazardous waste operations and precast fabrication.

Technique	Strengths	Weaknesses
Laser scanning	Certified accuracy Repeatability Uniform/glossy materials	Frequent occlusion
Photogrammetry	High-quality color information Little occlusion	Uniform/glossy materials

Acquisition type	Strengths	Weaknesses
Drone	High, inaccessible areas	Medium resolution: centimeters Very thin parts
Ground	High resolution: millimeters Very thin parts	High, inaccessible areas

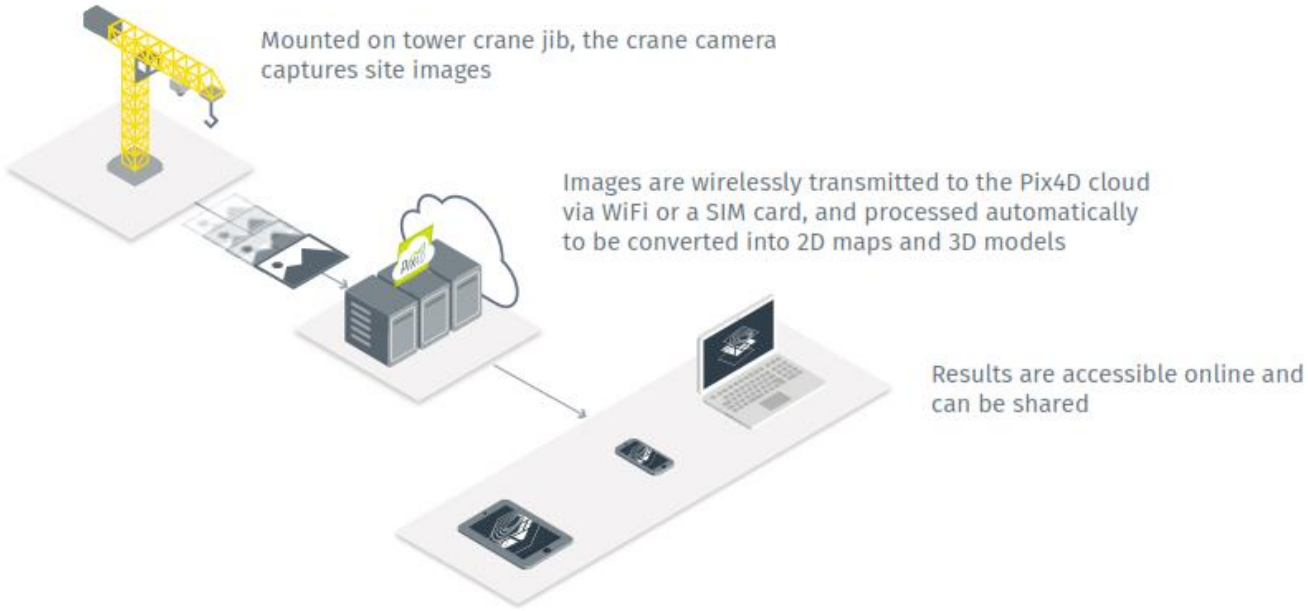
3. Continuous *Aerial video monitoring*, via Crane Camera for overall compliance,

- High resolution images for complete site overview
- Accurately scaled and geolocated orthophotos for:
    - Site visualization
    - Progress monitoring
    - Construction and schedule verification
    - CAD/BIM compatible for overlay comparison with design drawings
    - Measurement of distances and areas
    - Annotations for sharing and communicating with colleagues
    - 3D models for highly visual representation of project

This continuous and ongoing monitoring offers the following benefits,

i. Mounted on the jib, powered by the crane
ii. Non-intrusive solution, no physical access required on site
iii. Images captured automatically during normal crane operation
iv. Wireless data transmitted to AerialZeus' cloud for automatic processing
v. Deliverables available to everyone, from anywhere, on AerialZeus' cloud
vi. Advanced editing tools available on BIM desktop-software

The following diagram best describes this process,



All this data collected, processed and analyzed will facilitate reporting among all stakeholders. Moreover, this data will ensure contractor safety compliance and verify that all work in the field is performed within contractual agreements and specifications.

Last, aerial imagery will assist with the creation of topographic maps and digital elevation models in order to monitor compliance with all environmental requirements including Stormwater Pollution Prevention Programs (SWPP) and similar requirements.

The latest developments in Sensor Technology, Artificial Intelligence and Online tools allow for efficient exchange of information at every stage of the Construction Process.

Please let us know of any questions about the information here presented.

Sincerely yours,

Luis Robles

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