



Centre Tecnològic de Catalunya

MOBILE ROBOTICS FOR SMART CITIES EXPLORATION

« SELLING » STATEMENT:

An autonomous aerial robot for complete and time-efficient inspection of tunnel-like infrastructures with the ability of detecting and localising defects



Automated inspection with drones



Drone equipped with S2 sensor

KEY FEATURES

Drone for inspection of confined spaces:

- Modular, adaptable and automated inspection solution
- Pilot intervention gets reduced
- Coverage and quality of data is ensured
- Easy access to areas difficult to reach is enabled

Successful sensor integration:

- ROS driver to generalize the integration of S2 camera in robotic platforms: Fast processing and configurable
- Easy camera calibration
- Depth, Confidence, Ambient & Intensity maps and Point-cloud available
- 3D parts for integration to the drone

Localisation, mapping and planning:

- Depth-based odometry, localisation and mapping (demonstrated accuracy)
- Optimal coverage planner
- Implementation on the on-board computer interfacing the drone control

3D reconstruction and defect detection:

- Metrically consistent 3D reconstruction
- AI-based defect detection
- Depth-based defect characterization

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