BIM-Driven Drone Indoor Navigation

Rapidly understanding the interior of a building impacted by a disaster is usually essential for first responders, who may not be able to safely access the site. An ideal solution would be to acquire a consistent 3D model of the environment using unmanned vehicles without entering the site. However, positioning and navigation methods for UAV drones in indoor environments are still challenging tasks.

Settings:
• DJI Phantom 4.
• BIM model.

Task:
• You are given an indoor path through a model (of the TUM main building) and a drone. Your first task is to let the drone fly autonomously without crashing in a simulation tool.
• Once the Drone can autonomously fly safely in the Simulation, you have the task to implement the settings and let the real drone fly autonomously. When flying the path, the drone should firstly localize itself in the BIM Model.

Additional:
• As a second step, the drone should take pictures of the environment and compare them with the given BIM Model to detect temporary obstacles.