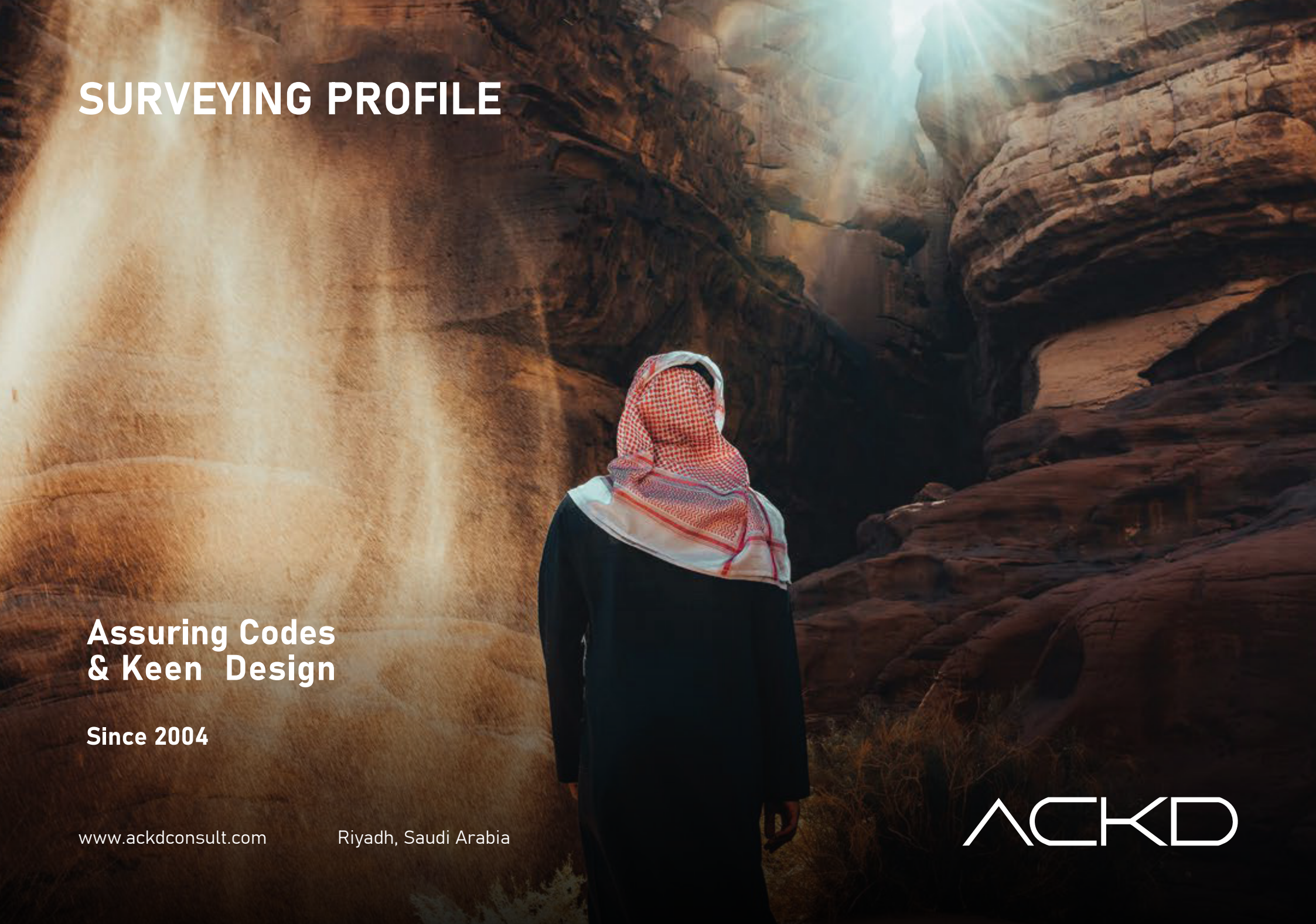
# SURVEYING PROFILE



## Assuring Codes & Keen Design

**Since 2004**

www.ackdconsult.com Riyadh, Saudi Arabia

ACKD

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# Services

Location : Saudi Arabia , Riyadh

**Brief Description:**
Hybrid As-built aerial survey and ground survey of the project site, to study the stability of the slopes.

**Details:**
Aerial survey conducted using Matrice 300 RTK drone with Zemuse P1 camera over 7.6 million sqm for precise infrastructure development in Riyadh City District 13 - Equestrian District.

**Deliverables:**
- Contour Lines.
- DSM Model.
- Topographic Map
- DTM Model
- GIS Map

# UAV Surveying

DJI MATRICE300 RTK

REACH RS3


SONY - RX1R II

WingtraOne - Gen

# UAV Surveying

Location : Saudi Arabia , Riyadh

**Brief Description:**

unmanned aerial surveying (drones) to carry out aerial photography for design purposes and the production of photographic images and video in Diriyah, Riyadh City.

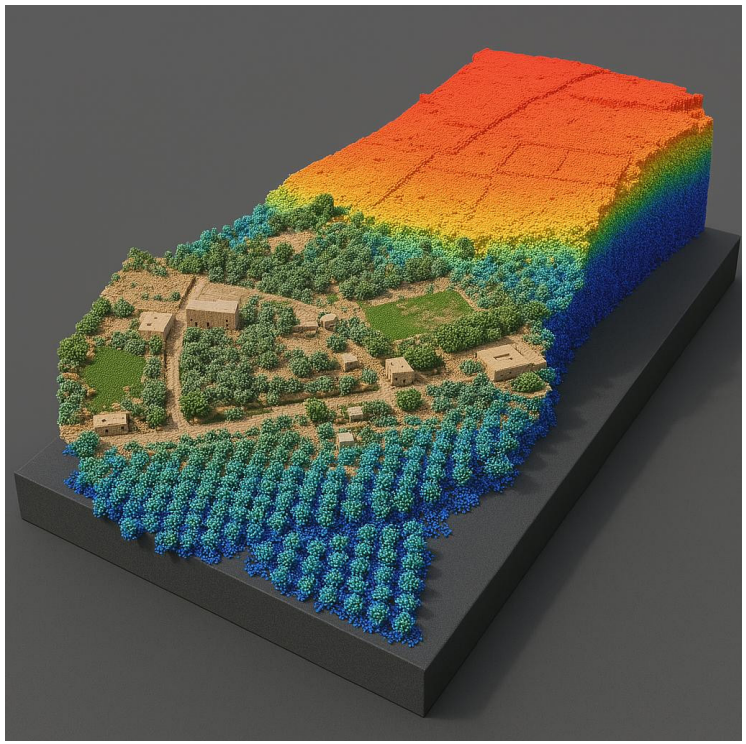
**Details:**

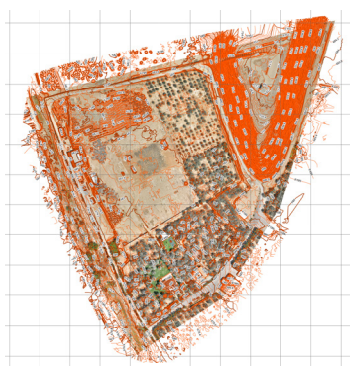
Aerial survey conducted using Matrice 300 RTK drone with Zemuse P1 camera

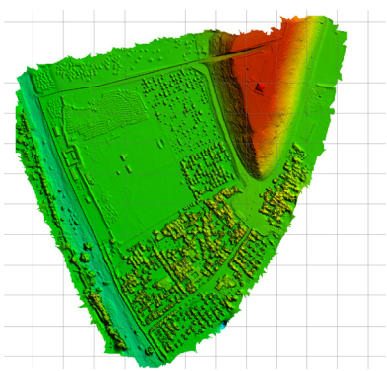
infrastructure development in Riyadh City

**Deliverables:**

- Contour Lines.
- DSM Model.
- Topographic Map
- DTM Model
- GIS Map







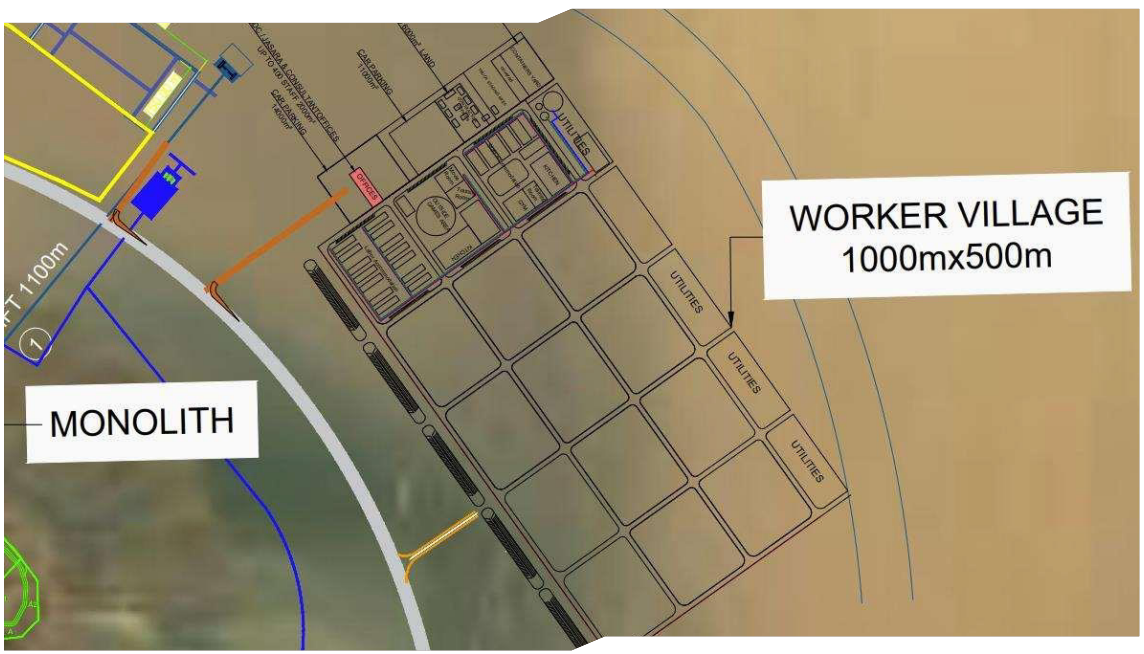
# Previous Projects

## Project W construction of Worker Village, ALULA

ACKD scope of work:

- AS-BUILT Drawings AND SITE PLAN.
- Review and Approval of fire safety Systems.
- Testing & Inspection of fire safety systems.
- Handover to Civil Defense.

Newfab



# Previous Projects

## Integrated Logistics Bonded Zone (ILBZ) Project – King Khalid International Airport (KKIA)

ACKD scope of work:

- AS BUILT AND SITE PLAN.
- Design review of fire safety systems.
- Approval of all fire safety Systems from GACA and CD.

Systematica

GACA
الهيئة العامة للطيران المدني
General Authority of Civil Aviation

# Previous Projects

## WADI HANIFA PROJECT

ACKD scope of work:

- AS BUILT AND SITE PLAN.
- Review of fire safety systems (FLS).
- Approval of Fire Safety systems from Civil Defense.

# Previous Projects

## The RITZ CARLTON Hotel

ACKD scope of work:

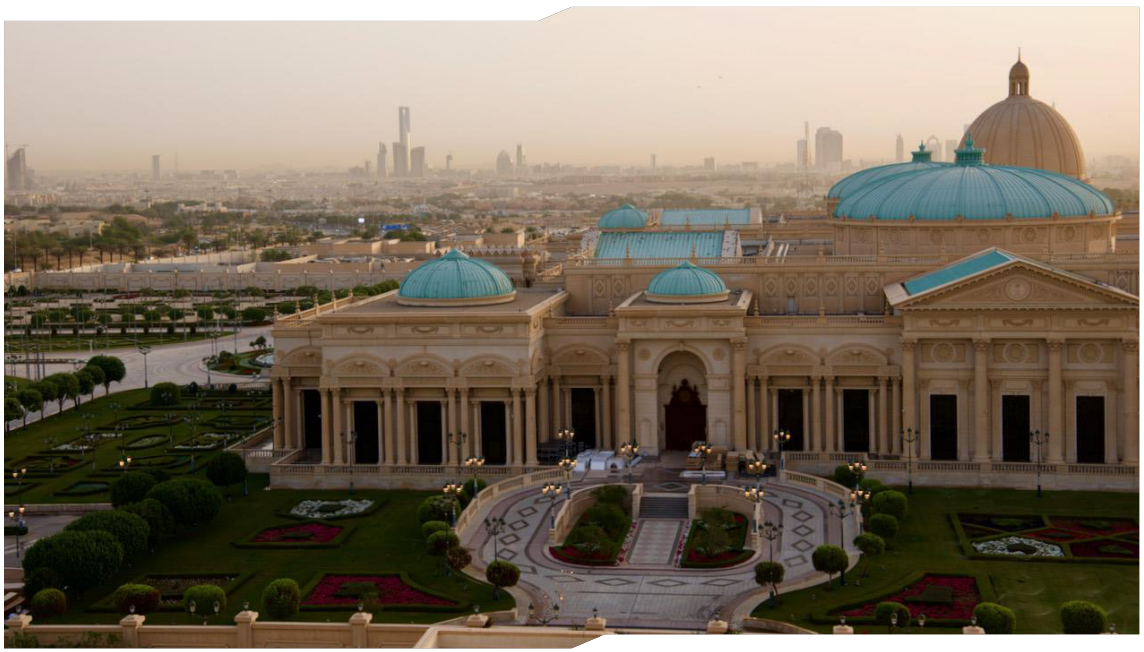
- As-built project.
- Fire & Life Safety design review.
- Approval of FLS package from Civil Defense.
- Inspection, and handover to Civil Defense.

# Previous Projects

## King Abdul Aziz International Conference Center

ACKD scope of work:

- As-built project.
- Fire & Life Safety design review.
- Approval of FLS package from Civil Defense.
- Inspection, and handover to Civil Defense.



# Previous Projects

## King Abdul Aziz International Conference Center

ACKD scope of work:

- Laser scan project.
- Fire & Life Safety design review.
- Approval of FLS package from Civil Defense.
- Inspection, and handover to Civil Defense

# Previous Projects

## Jeddah Islamic Seaport

ACKD scope of work:

- Develop the existing life safety system, and hand it over to the HCIS.
- Site survey project

# Laser scan survey

## Introduction

Laser scanning of buildings is considered a modern and very advanced technology compared to traditional scanning. Here are some of the main advantages of building laser scanning:

High accuracy: Laser scanning uses high-precision sensors that measure distances very accurately. A 3D point cloud containing millions of points is created, providing an accurate representation of the surveyed building.

Speed and efficiency: Thanks to laser scanning technology, the dimensions and geometric details of the building can be measured very quickly. A 3D model of the building can be generated quickly, saving time and effort spent on traditional surveying that requires manual measurement.

Save resources: Laser scanning reduces the need for complex pre-planning and the use of many traditional teams and tools. Alternatively, a small laser scanning team can carry out the scanning easily and effectively.

Provides comprehensive information: Laser scanning provides comprehensive and comprehensive information about the building, including the interior and exterior structure, engineering details and finishes. This information can be used in a variety of applications such as engineering design and analysis and facilities management.

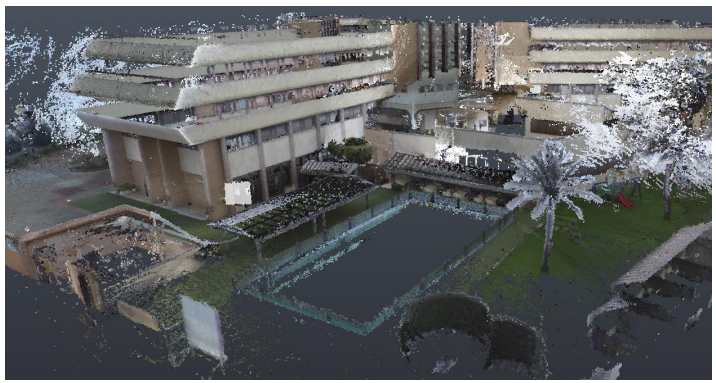
Collision accuracy and probability: Laser scanning data can be used to analyze potential collisions and conflicts in a building. Better coordination of projects can be achieved and potential problems in the post-construction stages can be avoided.


# Laser scan survey Process

Laser scanning is a technology used to measure distances and determine locations using laser beams.
Here are the basic steps to perform laser scanning:
You will need a laser device that contains a laser source and a receiver to receive the bounced signals.
We install the device: Mount the device on a stable platform such as a tripod or a moving vehicle.
We define the scanning area: Select the area you wish to laser scan. This area can be a building, floor, city, or any other location.
We turn on the laser: turn on the device and adjust its settings according to your needs. You can adjust the polarization angle, pulse intensity, sampling rate, laser range and other settings.
We analyze the data: After collecting the data, it must be analyzed and processed using BIM programs in order to create two-dimensional maps, horizontal projections, and a 3D model. On the BIM system

# Sample of the previous projects

1_SAUDI HOSPITALITY COMPANY (SHC)




Scope of Services

As-Built: Architecture, Civil & MEP WITH LASER SCAN

LE MERIDIEN EL HADA HOTEL

2_The RITZ CARLTON Hotel.(survey project).

Scope of Services

As-Built: Architecture & MEP

# Sample of the previous projects

3_Al Tamimi company.


Scope of Services
As-Built: Architecture & Civil & MEP
CANOPY BUILDING

4_ Ibrahim Al-Qahtani company (iq) for real estate development


As-Built: Architecture, Civil & MEP
Residential Buildings

# Sample of the previous projects

5_Bisha City Boulevard.


ACKD Consult SOW:

As-built architecture, Civil & MEP.

Fit out for building

6_Jeddah Islamic Seaport.

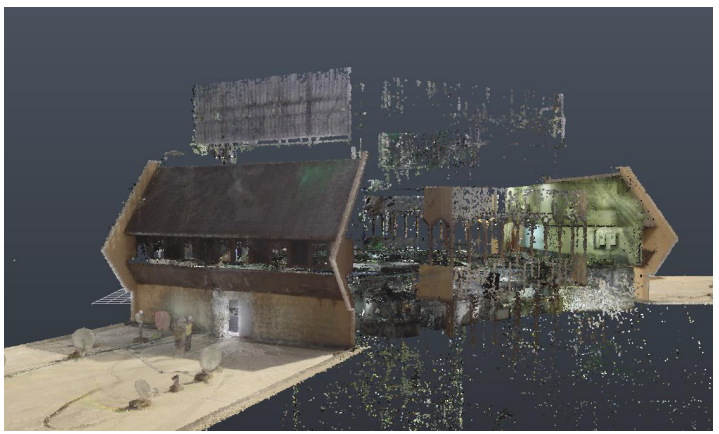
ACKD Consult SOW:

Survey for the site plan .

# Laser scan survey

## System Features Data

| | | | |
|---|---|---|---|
| Maximum Range | | Range 100m (features <40m) | |
| Data Acquisition | | 300,000 points/sec | |
| Data Storage Capacity | | 55GB | |
| Resolution | | 0.625° horizontal | 1.8° vertical |
| No. of sensors | | 16 | |
| Raw data file size | | 100-200MB* a minute | |
| Mounting Operation | | Removable handle provided,<br>can also be pole or vehicle mounted | |
| Accuracy | Relative Accuracy | 1 – 3cm | |
| | Absolute Position Accuracy | 3 – 30cm (10 mins scanning,1 loop) | |
| Angular FOV | | 270° x 360° | |
| Battery Life | | 1.5hours (continuous use) | |
| Colorized point cloud | | YES | |
| UAV compatibility | | High | |
| Scanning Speed | | 100 HZ | |
| 360° camera | | compatible | |
| Wi-Fi | | yes | |
| Other format | | las, .ply, .e57 | |
| Real time visualization during scanning | | yes | |
| Weight | | (scanner) 1.3kg | (total system with battery) 4.1kg |



# A PPLICATIONS, INCULDING

2D FLOOR PLAN GENERATION
3D VOLUMETRIV CALCULATIONS
MEASURED BUILDING SURVEY SCANNED TO BIM
OBJECT IDENTIFICATION
REAL STATE
MINING
DATA COLLECTION FOR GEOSPATIAL PR WITHOUT
THE NEED FOR GPS APPLICATIONS
General Features Fast Complete surveys in minutes, much faster than traditional
Graphical user interface using a mobile phone or tablet
SLAM quality real-time while 3D scanning Rreal-time
Real time processing while 3D scanning
Colored RGB point clouds
Publish web-based 360-degree virtual tours
Scan outdoors and indoors with ease
Build a highly accurate 3D model with Cutting-edge technology with the latest SLAM algorithm
300,000 points per second with an accuracy of 1

Geo slam

Gps

Total station

# A PPLICATIONS, INCULDING

3D laser scanning has remarkable experiences on a wide variety of historic and archaeological sites preservation and documentation we respect both the cultural significance as well as possible fragile physical conditions that are often present. These types of sites are well suited for 3D laser scanning. They often have structures or ruins that are very sensitive and require careful evaluation before any work is done .

Sometimes, data is needed in order to catalogue existing conditions for documentation or scientific study. In any case, laser light is the preferred method for collecting data of current conditions. Our laser scanners can map out complex areas easily and can track the smallest changes over time - without endangering ruins, artifacts or historic structures. Also we produce metric orthophoto images with pixel size ranging from a few millimeters to a few tenths of a millimeter.

# As Built & Urban Mapping

Laser scanning is being used widely for the capture of 3D city models for applications ranging from urban planning and traffic management, to architecture documentation Mounted on an automobile, mobile mapping systems can capture laser data at normal driving speeds, meaning that urban environments can be mapped in a short amount of time.

Combining the laser scan data with video and photographic imagery enables color point clouds and 3D models to be created accurately with realistic texture mapping

Typical urban mapping applications include:

- City Modeling ·
- Road & Highway Improvement ·
- Flood Mapping
- Traffic Management ·
- ALLPHOTO

# Industrial sector services

## Industrial Sector Services

We provide accurate and comprehensive digital models for industrial facilities 3D laser scanning services provide the most valuable tool you can have in managing your facility Saving time and money. Managing multiple facilities over a large area is very challenging, we provide with 3D models derived from highly accurate 3D laser scanning data. You will have the ability to visit each site virtually from your desktop. When you need to take measurements, make tenant improvements, or plan for department relocations, just pull up a Tru View of the facility on your computer .

Expansions to complex facilities needs accurate as-built information. With our advanced 3D laser scanning Tec equipment, structural steel - and give you an intelligent model of your facility. we can capture everything - piping, HVAC, Every single component of your facility, When do they require maintenance? Do you have a list of these assets and their maintenance records? Let us help you map and inventory these assets and get your maintenance schedule working so that you are PRO –active instead of RE-active in maintaining your .facility throw intelligent operating / maintenance models.

# Industrial sector services

MEP (Mechanical, Electrical, and Plumbing) systems laser scanning refers to the application of laser scanning technology specifically for capturing and analyzing MEP systems in buildings or infrastructure projects. It involves using laser scanning devices to collect precise and detailed measurements of MEP components such as pipes, ducts, electrical conduits, and equipment.(As-Built Documentation, Clash Detection and Coordination, Retrofitting and Renovation,.....

# THANK YOU

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Assuring Codes & Keen Design