



Petra Development & Tourism Region Authority
سلطة إقليم البترا التنموي السياحي

PDTRA SMART MOBILE SOLUTION

PETRA DEVELOPMENT TOURISM REGIONAL AUTHORITY

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1. About PDTRA

PDTRA, established in 2009, is an autonomous financial and administrative authority dedicated to fostering economic, social, cultural, and tourism development within the region. PDTRA's mission also extends to contributing to local community development. The authority is governed by a Board of Commissioners comprising five members, including the President, Vice President, and a member with authorization over the Petra Reserve. These appointments are made by the Prime Ministry and subsequently approved by His Majesty King Abdullah II.

2. Primary Objectives

The primary objective of the mobile camera solution for Petra is to enhance security, monitoring, and visitor management within the Petra Reserve. This includes:

1. **Real-Time Monitoring:** The mobile cameras aim to provide real-time surveillance and monitoring of key areas within the Petra Reserve, ensuring the safety of visitors, protection of heritage sites, and early detection of any security issues or incidents.
2. **Visitor Safety:** By capturing and transmitting live video feeds, the cameras contribute to the safety of tourists and staff by helping authorities respond promptly to emergencies, accidents, or any unusual activities.
3. **Efficient Management:** These cameras assist the Petra Development Tourism Regional Authority (PDTRA) in efficiently managing visitor flows, enabling them to make informed decisions regarding resource allocation and crowd control measures.
4. **Data Collection:** The cameras can provide valuable data for visitor statistics, enabling PDTRA to better understand visitor behavior, preferences, and needs, which can inform future planning and development efforts.

3. Current

In an effort to enhance the visitor experience at Petra, PDTRA has replaced traditional horse carts with modern golf carts for transportation within the site. Golf carts have been introduced at the site entrance to address the unique challenges presented by Petra's ancient rocky canyons. Here are key details about this convenient mode of transportation:

- Improved Convenience: Golf carts significantly reduce travel time from the entrance to Petra's iconic Treasury, covering a nearly 2-kilometer distance that can be physically demanding for some visitors.

1. Time Efficiency: Golf carts cater to time-conscious travelers, providing a swift route to the Treasury, saving up to two hours of walking.
2. Exploration Options: Upon reaching the Treasury, visitors can choose to continue their journey by golf cart to explore other archaeological sites, take a free walking tour, or return to the entrance using the same vehicle.
3. Scenic Journey: The golf cart ride to the Treasury offers a picturesque experience, passing through the Siq, a rocky canyon with Petra attractions like the Djinn Blocks, Tomb of the Obelisks, and the ancient water channel. The Treasury itself is a stunning monument.
5. Extended Exploration: Golf carts allow access to other Petra sites, including the Street of Facades, the Theater, and the Columned Street.

Integration of Smart Mobile Solution: To enhance security and tracking capabilities, PDTRA plans to implement a Smart Mobile Solution for its golf cart fleet.

PDTRA aims to deploy this trusted solution across its existing fleet of 35 golf carts, with potential expansion in the future.

4. Objective

The primary objective for implementing the required system is to enable real-time monitoring of golf cart drivers and Petra visitors using the golf carts. Specifically, the system aims to achieve the following:

1. Monitor the driver in real time.
2. Monitor Petra visitors who are using the golf carts in real time.

5. System Requirements

A. Eyeball Mobile Camera

1.1 Description:

This component offers a 1080p full HD mobile video surveillance solution while maintaining the simplicity of an analog infrastructure. The mobile camera is designed with a shock-proof, compact case for easy installation and adaptability to various applications. It provides high-quality images and features a multi-language on-screen display (OSD). Additionally, the camera leverages HDCVI technology to ensure real-time transmission.

1.2 Functionality:

- Transmission of 4 signals over 1 coaxial cable simultaneously.
- Shock-proof design certified under EN50155 to withstand vibrations in mobile applications.
- Smart IR technology for improved low-light performance and brightness uniformity in black and white images.

1.3 Technical Specifications:

- Image Sensor: 1/2.7 inch CMOS
- Max. Resolution: 1920 (H) x 1080 (V) Pixels (2MP)
- Scanning System: Progressive
- Electronic Shutter Speed: PAL: 1/25 s–1/100000 s, NTSC: 1/30 s–1/100000 s
- S/N Ratio: >65 dB
- Min. Illumination: 0.02 Lux/F2.0, 30IRE, 0 Lux IR on
- Illumination Distance: 3 m (9.8 ft) with IR illumination
- Illuminator On/Off Control: Auto; manual
- Illuminator Number: 1 (IR)

- Lens:
 - Lens Type: Fixed-focal
 - Mount Type: M12
 - Focal Length: 2.1 mm
 - Max. Aperture: F2.0
 - Field of View: H: 132°; V: 69°; D: 164°
 - Iris Type: Fixed iris
 - Close Focus Distance: 0.5 m (1.64 ft)
- Video:
 - Frame Rate: CVI: 1080p@25/30fps; 720p@25/30fps; 720p@50/60fps; AHD: 1080p@25/30fps; 720p@25/30fps; TVI: 1080p@25/30fps; 720p@25/30fps; 720p@50/60fps; CVBS: 960H
 - Resolution: 1080p (1920 × 1080); 720p (1280 × 720); 960H (960 × 576/960 × 480)
 - Day/Night: Electronic
 - BLC: BLC/HLC/DWDR
 - WDR: DWDR
 - White Balance: Auto; manual
 - Gain Control: Auto; manual
 - Noise Reduction: 2D NR
 - Smart IR: Yes
- Certifications:
 - Certifications: CE/FCC
- Port Video Output:
 - 1-channel CVI/CVBS/AHD/TVI switchable video output
- Aviation Connector Interface:
 - This interface is used for connectivity purposes in the system.

B. Mobile Video Recorder

2.1 Description:

The AI mobile video recorder is equipped with intelligent features and employs H.265 technology and deliver several benefits, including reduced transmission bandwidth and efficient storage utilization. This versatile recorder supports 1080P high-definition real-time recording, offers real-time vehicle location tracking and monitoring, and facilitates the seamless uploading of data, including GPS information and video, via wireless networks such as 3G/4G/Wi-Fi. The device has successfully met the rigorous standards of EN50155/ISO16750 to ensure its suitability for mobile applications.

2.2 Key Functions:

1. Anti-Vibration: Designed to withstand and mitigate vibrations encountered in mobile environments, ensuring stable recording and performance.
2. Wide Range of Power Supply: Supports a broad power supply range, making it adaptable to various vehicle configurations.
3. 3G/4G/Wi-Fi Connectivity: Enables data transmission and remote access via 3G, 4G, or Wi-Fi networks, facilitating real-time monitoring and data uploads.
4. GPS Integration: Features GPS technology for accurate vehicle location tracking and positioning.
5. Multiple Ports: Equipped with various ports to accommodate camera inputs and external devices.

2.3 Technical Specifications:

- Main Processor: High-performance industrial embedded microcontroller
- Operation System: Embedded LINUX
- Operation Interface: WEB, AV, VGA
- Video:
 - Analog Camera Input: Supports 4 HDCVI/AHD/TVI/CVBS cameras, up to 1080P resolution (Please note that audio input is not supported when connecting AHD/TVI/CVBS cameras).
 - IP Camera Input: Allows connection of up to 4 IP cameras, with extendability via PoE switch, supporting resolutions up to 1080P.
 - Video Frame Rate: PAL: 1–25 fps, NTSC: 1–30 fps
 - Video Output: AV OUT×1, VGA×1, with output resolutions of 800×600 and 1280×1024.
 - Display Split: Offers 1/4/8/9 channel display split options.
 - OSD Overlay: Provides overlay options for channel, time, GPS position, and license plate information.
 - Image Quality Adjustment: Allows adjustable image quality across six levels.
- Recording and Playback:
 - Record Mode: Supports auto, manual, motion detection, schedule, and alarm-based recording.
 - Record Alarm Priority: Configurable priority order for recording triggers: alarm > motion detection > schedule.

- Recording Playback: Supports playback in 1x and 4x speeds.
- Backup: Enables data backup to HDD, USB flash drives, and network storage.
- Playback Mode: Offers normal playback mode.
- Power Supply:
 - Power Supply Range: DC 6-36V with a built-in UPS, providing system protection during normal power cutoff and under voltage conditions of the vehicle battery.
- Satellite Positioning:
 - GPS/GLONASS: Utilizes GPS and GLONASS satellite positioning systems for accurate location tracking.
- Storage and Heat Dissipation:
 - Built-in Fan Cooling: Includes a built-in fan for effective heat dissipation.
 - SD Card Slot: Features one SD card slot with a capacity of up to 512G.
- Certifications:
 - Certifications: CE, FCC, EN50155, ISO7637-2, ISO16750, BIS (Bureau of Indian Standards)

C. Centralized Software

3.1 Description:

The primary purpose of the software is to configure, monitor, track, and manage all live cameras deployed in the field, specifically on Petra golf carts. In addition to these core functionalities, the software offers the following capabilities:

3.2 Key Parameters

- Message Storage Time Setup:
 - Definition: Configures the longest duration for retaining log messages. Default setting is 30 days.
- Alarm Info:
 - Definition: Establishes the maximum duration for retaining alarm information. Default setting is 30 days.
- GPS Info:
 - Definition: Specifies the longest duration for retaining GPS information. Default setting is 30 days.
- POS:
 - Definition: Sets the maximum duration for retaining POS (Point of Sale) information. Default setting is 30 days.
- Face Recognition:
 - Definition: Determines the maximum duration for retaining face recognition data. Default setting is 180 days.

- Passed Vehicle Record:
 - Definition: Sets the maximum duration for retaining records of passed vehicles. Default setting is 180 days.
- Access Snapshot:
 - Definition: Configures the maximum duration for storing entrance snapshot records.
- Customer Analysis:
 - Definition: Sets the maximum duration for retaining people flow statistics records.
- Manager Operations:
- Mail Server:
 - Definition: Configures mail server settings including IP, port, encryption type, username/password, sender, and test recipient. This enables sending email notifications to users for alarm linkage configurations and client-handled alarms by administrators.
- Activity Directory:
 - Definition: Sets domain information.
- HTTPS:
 - Definition: Enables HTTPS security verification.
- POS End:
 - Definition: After setting the POS end mark, it will be displayed at the location of POS receipts end.
- Picture Storage Setup:
- Picture Storage Time:
 - Definition: Specifies the storage duration for pictures in days.
- Max Capacity:
 - Definition: Activates cyclic overlap when the storage space falls below the set value.

These software parameter specifications are essential for managing and controlling all mobile cameras on Petra golf carts effectively. The software ensures the efficient operation and data management of the surveillance system, enhancing security and monitoring capabilities.

D. Server and Storage Requirements:

To facilitate the robust operation of the Petra Golf Cart Central Software, the following hardware components are essential:

- **Server Infrastructure:**
 - Definition: High-performance server infrastructure to host the central software platform, ensuring seamless data processing and management.
 - Quantity: One server unit.
- **Storage Solution:**
 - Definition: Enterprise-grade storage solution with sufficient capacity to accommodate the data generated by 35 cameras. The solution should also support efficient data retrieval.
 - Capacity: To be determined based on storage requirements.
- **SD Card Specifications:**
 - Each of the 35 golf carts will be equipped with the following SD card specifications:
- **SD Card for Each Golf Cart:**
 - Definition: High-capacity, durable SD cards installed in each golf cart to store camera data locally.
 - Capacity: To be determined based on the specific data storage needs of each golf cart camera.

E. Cabling and Connectivity Requirements:

To establish a robust and reliable communication network for the 35 cameras in the golf carts, the following cabling and connectivity components are required:

- **Cabling Infrastructure:**
 - Definition: High-quality cabling infrastructure to connect and power the cameras on each golf cart, ensuring uninterrupted data transmission and power supply.
 - Quantity: To be determined based on installation requirements.
- **Wireless Communication:**
 - Definition: Implementation of wireless communication equipment for seamless data transmission between the golf carts and the central server.
 - Technology: Utilize 3G/4G/Wi-Fi for wireless data communication.

F. Professional Installation and Integration:

- Professional Services:
 - Definition: Expert installation and integration services to ensure the seamless setup of cameras, server, and storage infrastructure in the golf carts and central server location.
 - Integration: Ensure proper integration of all hardware components with the Petra Golf Cart Central Software.

G. Communication Infrastructure:

- Communication Network:
 - Definition: A robust and secure communication network to facilitate real-time data transmission between the golf carts and the central server.
- Additional Communication Requirements:
 - Definition: Any additional communication equipment or infrastructure necessary to support the operation of the surveillance system, including but not limited to routers, switches, and related networking hardware.

The hardware components specified above are essential to support the installation and operation of the Petra Golf Cart Central Software with 35 cameras across 35 golf carts. These components are vital for maintaining a high level of data integrity, system reliability, and real-time monitoring capabilities.

Please note that the capacity and scalability of the storage solution, as well as the specific cabling and connectivity requirements, will be determined during the project planning phase based on the system's exact needs. All components and installations must adhere to industry standards and regulations to ensure the successful implementation of the surveillance system.

6. Compliance Sheet

6.1 Mobile Cameras

Ref #	Requirement Description	Compliance (Yes/No)	Comments/Details
1			
1.1	High-definition mobile cameras with resolution \geq 1080P	<input type="checkbox"/> Yes	
1.2	Durability and resistance to vibrations	<input type="checkbox"/> Yes	
1.3	GPS integration for real-time location tracking	<input type="checkbox"/> Yes	
1.4	Wireless data transmission (3G/4G/Wi-Fi)	<input type="checkbox"/> Yes	
1.5	Compliance with EN50155 standards	<input type="checkbox"/> Yes	
1.6	Additional features (if any)	<input type="checkbox"/> Yes	

6.2 Mobile Video Recorders

Ref #	Requirement Description	Compliance (Yes/No)	Comments/Details
1			
1.1	AI-enabled mobile video recorders	<input type="checkbox"/> Yes	
1.2	Use of H.265 technology for bandwidth efficiency	<input type="checkbox"/> Yes	
1.3	Support for 1080P real-time recording	<input type="checkbox"/> Yes	
1.4	Secure and reliable storage options	<input type="checkbox"/> Yes	
1.5	Compliance with EN50155 standards	<input type="checkbox"/> Yes	
1.6	Additional features (if any)	<input type="checkbox"/> Yes	

6.3 Central Software

Ref #	Requirement Description	Compliance (Yes/No)	Comments/Details
1			
1.1	Configuration, monitoring, and tracking capabilities	<input type="checkbox"/> Yes	
1.2	Flexible data retention options (log, alarm, GPS, etc.)	<input type="checkbox"/> Yes	
1.3	Time synchronization functionality	<input type="checkbox"/> Yes	

1.4	User-friendly management interface	<input type="checkbox"/> Yes	
1.5	Support for email notifications via mail server	<input type="checkbox"/> Yes	
1.6	Compliance with HTTPS security standards	<input type="checkbox"/> Yes	
1.7	Additional features (if any)	<input type="checkbox"/> Yes	

6.4 Hardware Requirements

Ref #	Requirement Description	Compliance (Yes/No)	Comments/Details
1			
1.1	Server infrastructure for central software	<input type="checkbox"/> Yes	
1.2	Enterprise-grade storage solution	<input type="checkbox"/> Yes	
1.3	SD cards for each golf cart	<input type="checkbox"/> Yes	
1.4	Cabling and connectivity infrastructure	<input type="checkbox"/> Yes	
1.5	Reliable power supply and backup systems	<input type="checkbox"/> Yes	
1.6	Professional installation and integration services	<input type="checkbox"/> Yes	
1.7	Communication network infrastructure	<input type="checkbox"/> Yes	
1.8	Additional communication equipment (if required)	<input type="checkbox"/> Yes	
1.9	Reference in Jordan for the same solution under the same brand	<input type="checkbox"/> Yes	