

PART 1 SYSTEM REQUIREMENT

- A. The WTS shall be a Platform as On-Premise architecture, and support cloud-based architecture. All data is maintained and communicated with the server. Administrators can do daily work like modifying settings and visiting records by only opening web browsers.
- B. The WT server has different user levels, admin user, system user, checkpoint registration user, and the patrol guard user. Admin & system user has different access rights to access the WT server applications. Checkpoint registration user and the patrol guard has different operation mode on the mobile apps.
- C. All operators shall perform patrol tours via an Android platform device with an NFC communication function. The device shall be connected to the network via Wi-fi or internet during WT operation.
- D. A unique ID of the NFC tags can be installed on the Check Points for Watchman Tour Stations
- E. Operators take attendance by swiping the device to the checkpoint made by NFC tags.
- F. The WTS shall support the operator to upload all kinds of media like photos, voice handwriting, and videos to the server so that operators can real-time track the feedback and take action immediately.
- G. The WTS shall be able to support an infinite number of checkpoints with central control and monitoring in the Security Control Room.
- H. The WTS shall be real-time records uploading, generating, and checking the patrol tour operation.
- I. The WT routine can be assigned to access the checkpoint by a fixed time or free time schedule which has a time tolerance in a few minutes.
- J. The system response time shall not be less than the following:
 - 1. Real-time with no latency of less than Two (2) seconds when the guard Check-in at the checkpoint with a Mobile Data Acquisition Application (APP) to the time when the checkpoint acknowledges that the verification is completed.
 - 2. Thirty (30) seconds for re-programming of tour routes.
 - 3. Thirty (30) seconds for system initiation after system shut down.
- K. For the Watchman Tour System, Watchman Tour Stations as Check Points (WT) shall be provided as shown on the Drawings. It shall be able to, through the user workstation, assign any combination of WT to form a patrol officer's route and download the tour route to the Mobile Data Acquisition Application (APP).
- L. WT NFC Tag shall be installed at strategic locations, e.g. staircases inside the building as shown on the Drawings. By simply scanning an APP over the unit, the APP shall real-time get and store

information on visit time, date, and location.

- M. When a tour is finished, the patrol information shall be real-time communicated to the Watchman Tour System control workstation via the APP. It shall be possible for the operator to request a printout of the tour summary on the printer if requested.
- N. WTS shall support fixed and flexible routes. Also, flexible route shift setting with special and effective dates functions.
- O. WTS shall support all kinds of operating systems with popular Internet Browsers like Chrome, I.E., Firefox etc.
- P. WTS shall provide random scramble encryption for all data communication.
- Q. The operator shall be readily able to program patrol tour structure through keyboard commands in the watchman tour workstation.
- R. When a tour is defined by the operator, the following parameters shall be specified:
 - 1. The particular WT assigned to the tour.
 - 2. The sequence in which the WT is to be activated.
 - 3. The time interval between WT.
- S. Provide ten (10) APPs with a permanent license to the project. Operators can do daily work like modifying settings and visiting records by only opening web browsers.
- T. Provide a sufficient quantity of WT as shown on the layout drawings with 10% spare.
- U. The WTS shall provide an open Application Programming Interface (API) with the capability to transfer patrolling records data to third-party platforms including Facility Management (FM) Portal for Central Management.

PART 2 PRODUCTS

2.01 Watchman Tour Check Points

- A. Watchman Tour Checkpoints made by both NFC tags shall be available for operator selection.
- B. The watchman tour checkpoints shall be wireless type, suitable for an Android phone with NFC communication function at indoor and outdoor use and can be concealed behind 10 mm thick non-metallic architectural finishes.
- C. The NFC Tag shall have a unique ID.
- D. The checkpoint shall be manipulation-free, vandal-proof, small, lightweight, impervious to changes in an electromagnetic field with encryption.
- E. When installed flush to architectural finished, a variety of colors shall be available, for defining different data groups or harmony with the surrounding environment.
- F. Manufacturer-made mounting brackets shall be provided if surfaced mounted.
- G. Paper or plastic bar code is not acceptable.

2.02 Mobile Data Acquisition Application (APP)

The mobile data acquisition application (APP) shall provide the following features as a minimum:

1. Support Android Phones and devices compatible with the Android platform with NFC communication function
2. Support Wi-Fi IEEE802.11 b/g/n/ac/ax and Mobile Operation Network in 4G and 5G.
3. Capable of operating 24 hours continuously.
4. Comprehensive feedback available include records, incidents, SOS, voice, Photos, and videos.
5. Visual and acoustical confirmation of reading.
6. Capable of supporting/storing at least 100,000 readings.
7. Provide all the features required for transferring all tour information between the APP and the main system.
8. Complete with an indicator in the GUI, which shall be activated when the data collection and transmission are completed
9. The records data acquired from watchman tour checkpoints shall be capable of transferring to third-party systems including Facility Management (FM) Portal through open API. The records data shall be integrated to facilitate asset and work order management behaviors.

2.03 Watchman Tour Workstation

- A. A Watchman Tour Workstation capable to program tour structure, recall any predetermined tour route, collect the tour information from the Watchman Tour Downloader, verifying the tour sequences, and raise audio and visual alarms, shall be included.
- B. The workstation shall provide an online graphical display of the current patrol tour readings.
- C. The workstation shall capable to program an infinite number of routes and checkpoints.
- D. The workstation shall generate the following reports upon an operator's request.
 - 1. Incident report.
 - 2. Missed station report.
 - 3. Sequence errors report.
 - 4. Regular station report.
 - 5. Duplicate stations report.
 - 6. Early station report.
 - 7. Late station report.
 - 8. Station not forming part of the tour report.
- E. The statistics and reports generated by the workstation shall be capable of sharing with third-party platforms including Facility Management Portal through open API.
- F. The minimum requirements of the computer shall comply but are not limited to the following:
 - 1 Processor: Intel® Core™ i7 or above
 - 2 RAM: 32GB Non-ECC DDR3 1600MHz SDRAM or more
 - 3 Hard disk free space: 4TB 7200RPM 3.5" 512e/4k Hard disk
 - 4 Monitor Resolution Support: 1920 x 1080 (16:9)
 - 5 Network: 1x1000BASE-T/100BASE-TX Ethernet Port
 - 6 Operating System: Microsoft Windows 10 64 bit of the latest Service Pack.
 - 7 USB Keyboard and Mouse
 - 8 Minimum 2 USB ports supporting USB3.0
 - 9 Any other software not specified but required to complete the system and perform the video processing function functions as specified in this Specification.
- G. The workstation and monitor shall with "Recognition Type" energy label under the Energy Efficiency Labelling or USEPA Energy Star Rated or certified under an equivalent labeling scheme.

2.04 Watchman Tour Server

- A. A Cloud-based Watchman Tour (WT) Server shall be located in the public cloud

(internet) or on-premises (intranet).

- B. The Internet bandwidth should be 100Mbps or above
- C. The WT Server allows multiple user login in. The ADMIN user can create a system users for access different WTS applications.
- D. The WT server can create a route setting, roster which includes a weekly or monthly route schedule, the roster can be assigned to the patrol guard.
- E. The WT server shall real-time reflect the patrol guard access record and the reporting text, voice, photo, and video.
- F. The WT server shall real-time respond to the patrol guard's SOS message.
- G. The workstation shall automatically maintain a historical log of all tours for a least 10,000 descriptive patrol readings.
- H. The WT server can connect up to TEN workstations at the same time.
- I. The minimum requirements of the WT server shall comply but are not limited to the following:
 - 1 Processor: Intel® Xeon® Silver 4210R 2.4G, 10C/20T, 9.6GT/s, 13.75M Cache, Turbo, HT (100W) DDR4-2400
 - 2 RAM: 32GB RDIMM, 3200MT/s, Dual Rank, 8Gb BASE x4
 - 3 Hard disk free space: 480GB SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 3.5in HYB CARR, 1 DWPD
 - 4 Monitor Resolution Support: 1920 x 1080 (16:9)
 - 5 Network: Two 10 GbE network ports, two 1 GbE network ports
 - 6 Operating System: Microsoft® Windows Server®/ Linux
 - 7 USB Keyboard and Mouse
 - 8 Minimum 2 USB ports supporting USB3.0
- J. The WT server shall achieve continuous application availability. The server software links two servers together via a virtualization platform that pairs protected virtual machines to create a single operating environment. The entire application environment, including data in memory, is replicated by the server software, ensuring applications continue to run without interruption or data loss. If one physical machine should fail, the application continues to run on the other physical machine without any interruptions or data loss. If a hardware component fails, the server software substitutes the healthy component from the second system until the failed component is repaired or replaced.
- K. The Server and monitor shall be with the "Recognition Type" energy label under the Energy Efficiency Labelling or USEPA Energy Star Rated or certified under an equivalent labeling scheme.