**P R O F O R M A**

**Request for Market Information (“RFI”) for
Supply and Installation of Robots for Domestic Use**

**for the Chinese Medicine Hospital (“CMH”)**

**(CMHPO Ref. : HHB/H/24/17/3/3/7)**

To : Project Director (CMHPO)

 (Attn. Rex MAK)

[by fax: 2127 4795 or email: rhwmak@healthbureau.gov.hk]

Your ref: (1) in L/M to HHB/H/24/17/3/3/7

In response to the RFI of the CMH, my/our company, with contact details provided in Part 1 below, would like to provide the information and relevant supporting documents in Parts 2 to 8 of this Proforma.

**Part 1 – Supplier’s Contact Details**

From:

(Name of the Supplier): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(please fill in)

Name and Post of Contact person: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(please fill in)

Email:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Telephone no.:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(please fill in) (please fill in)

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*This document does not constitute any offer or invitation / solicitation of any offer in connection with the exercise described herein. Neither this document nor any activities in connection therewith shall create any legal obligations or liabilities in any way on the part of the Health Bureau (HHB) or the Government of Hong Kong Special Administrative Region. Neither this document nor anything contained herein shall form the basis of any contract or commitment whatsoever. In responding to the RFI, a respondent shall be deemed to have agreed to all the terms of this Request for Market Information.*

**Purpose and Background Information of the RFI**

1. Purpose

Chinese Medicine Hospital Project Office (“**CMHPO**”) of the Health Bureau (“**HHB**”) of the Government intends to invite a tender for the supply and installation of robots for domestic use (hereinafter refers as the “**Goods**”) for the Chinese Medicine Hospital (“**opCMH**”) located at Pak Shing Kok in Tseung Kwan O. The CMHPO therefore wishes to collect market information on robots for domestic use.

1. Background of the CMH Project

The Chief Executive announced in the 2014 Policy Address that the Government had decided to reserve a site in Tseung Kwan O for setting up a CMH. The 2017 Policy Address stated that the Government decided to finance the construction of the CMH and identify by way of tender a suitable non-profit-making organisation (“NPMO”) to operate the CMH. CMH will be owned by the Government and the selected NPMO will operate the CMH. The CMH would be positioned as a flagship Chinese Medicine (“CM”) institution leading the development of CM services and Chinese medicines in Hong Kong. It will be a change driver, promoting service development, education and training, innovation and research, and facilitating collaboration with both local and international parties.

The CMH with provision of 400 beds will provide a comprehensive range of CM services. Service types include pure CM services, services with CM playing the predominant role in collaboration with Western Medicine (“WM”) and Integrated Chinese-Western Medicine (“ICWM”) services. The scope of service to be provided in the CMH covers inpatient, day-patient, outpatient and community outreach services.

To take forward the planning and development of the project on CMH, a designated office i.e. CMHPO, was established under the Health Bureau (the former Food and Health Bureau) on 2 May 2018. Hong Kong Baptist University (HKBU) was selected as the Contractor for the CMH operation. HKBU, as the Contractor, has incorporated a company limited by guarantee, namely HKBU Chinese Medicine Hospital Company Limited as the Operator to manage, operate and maintain the CMH. The CMH project has proceeded to the commissioning stage in 2021. It is targeted to commence hospital services by phases from 2025.

More information on the services provision and design of the CMH can be found in the following link:

<https://www.healthbureau.gov.hk/en/press_and_publications/otherinfo/200900_cmhp/index.html>.

**Note to Suppliers**

1. If your company have more than one model of robot for domestic use that may meet the requirements of the Goods stated in this Proforma, **please complete and return, together with relevant supporting documents, one set of Proforma for each different model** of robot for domestic use.

**Part 2 – General Information of the Goods**

|  |  |
| --- | --- |
| **Item 1.1: All-in-one Cleansing Robot** |  |
| 1. Place of origin
 |  |
| 1. Name of manufacturer
 |  |
| 1. Address of the manufacturer’s factory or plant (“Manufacturing Plant”)
 |  |
| 1. Product name of the item
 |  |
| 1. Model number/ name/ version number of the item
 |  |
| 1. Authorised agent or distributor of the manufacturer in Hong Kong
 |  |
| 1. Packing (if applicable)
 |  |
| 1. Delivery method and route (where the place of origin is outside Hong Kong)
 |  |
| 1. Warranty period of the item

(*Please refer to section G in Part 3 for details of the warranty service requirements*) | \_\_\_\_\_\_\_\_\_\_\_\_ months from Acceptance of the item(*Should not be less than 12 months*) |
| 1. Expected serviceable life (*Please specify any components of the item that cannot meet the serviceable life*)
 | The item shall have a serviceable life of \_\_\_\_\_\_\_ years from its date of acceptance except the following components: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(*Please also provide the expected life of these excluded components*) |

|  |  |
| --- | --- |
| **Item 1.2: Scrubbing Robot** |  |
| 1. Place of origin
 |  |
| 1. Name of manufacturer
 |  |
| 1. Address of the manufacturer’s factory or plant (“Manufacturing Plant”)
 |  |
| 1. Product name of the item
 |  |
| 1. Model number/ name/ version number of the item
 |  |
| 1. Authorised agent or distributor of the manufacturer in Hong Kong
 |  |
| 1. Packing (if applicable)
 |  |
| 1. Delivery method and route (where the place of origin is outside Hong Kong)
 |  |
| 1. Warranty period of the item

(*Please refer to section G in Part 3 for details of the warranty service requirements*) | \_\_\_\_\_\_\_\_\_\_\_\_ months from Acceptance of the item(*Should not be less than 12 months*) |
| 1. Expected serviceable life (*Please specify any components of the item that cannot meet the serviceable life*)
 | The item shall have a serviceable life of \_\_\_\_\_\_\_ years from its date of acceptance except the following components: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(*Please also provide the expected life of these excluded components*) |

|  |  |
| --- | --- |
| **Item 1.3: Mopping and Scrubbing Robot** |  |
| 1. Place of origin
 |  |
| 1. Name of manufacturer
 |  |
| 1. Address of the manufacturer’s factory or plant (“Manufacturing Plant”)
 |  |
| 1. Product name of the item
 |  |
| 1. Model number/ name/ version number of the item
 |  |
| 1. Authorised agent or distributor of the manufacturer in Hong Kong
 |  |
| 1. Packing (if applicable)
 |  |
| 1. Delivery method and route (where the place of origin is outside Hong Kong)
 |  |
| 1. Warranty period of the item

(*Please refer to section G in Part 3 for details of the warranty service requirements*) | \_\_\_\_\_\_\_\_\_\_\_\_ months from Acceptance of the item(*Should not be less than 12 months*) |
| 1. Expected serviceable life (*Please specify any components of the item that cannot meet the serviceable life*)
 | The item shall have a serviceable life of \_\_\_\_\_\_\_ years from its date of acceptance except the following components: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(*Please also provide the expected life of these excluded components*) |

|  |  |
| --- | --- |
| **Item 1.4: Sweeping Robot** |  |
| 1. Place of origin
 |  |
| 1. Name of manufacturer
 |  |
| 1. Address of the manufacturer’s factory or plant (“Manufacturing Plant”)
 |  |
| 1. Product name of the item
 |  |
| 1. Model number/ name/ version number of the item
 |  |
| 1. Authorised agent or distributor of the manufacturer in Hong Kong
 |  |
| 1. Packing (if applicable)
 |  |
| 1. Delivery method and route (where the place of origin is outside Hong Kong)
 |  |
| 1. Warranty period of the item

(*Please refer to section G in Part 3 for details of the warranty service requirements*) | \_\_\_\_\_\_\_\_\_\_\_\_ months from Acceptance of the item(*Should not be less than 12 months*) |
| 1. Expected serviceable life (*Please specify any components of the item that cannot meet the serviceable life*)
 | The item shall have a serviceable life of \_\_\_\_\_\_\_ years from its date of acceptance except the following components: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(*Please also provide the expected life of these excluded components*) |

|  |  |
| --- | --- |
| **Item 1.5: Infection Control Robot** |  |
| 1. Place of origin
 |  |
| 1. Name of manufacturer
 |  |
| 1. Address of the manufacturer’s factory or plant (“Manufacturing Plant”)
 |  |
| 1. Product name of the item
 |  |
| 1. Model number/ name/ version number of the item
 |  |
| 1. Authorised agent or distributor of the manufacturer in Hong Kong
 |  |
| 1. Packing (if applicable)
 |  |
| 1. Delivery method and route (where the place of origin is outside Hong Kong)
 |  |
| 1. Warranty period of the item

(*Please refer to section G in Part 3 for details of the warranty service requirements*) | \_\_\_\_\_\_\_\_\_\_\_\_ months from Acceptance of the item(*Should not be less than 12 months*) |
| 1. Expected serviceable life (*Please specify any components of the item that cannot meet the serviceable life*)
 | The item shall have a serviceable life of \_\_\_\_\_\_\_ years from its date of acceptance except the following components: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(*Please also provide the expected life of these excluded components*) |

|  |  |
| --- | --- |
| **Item 1.6: Delivery Robot (Type 1)** |  |
| 1. Place of origin
 |  |
| 1. Name of manufacturer
 |  |
| 1. Address of the manufacturer’s factory or plant (“Manufacturing Plant”)
 |  |
| 1. Product name of the item
 |  |
| 1. Model number/ name/ version number of the item
 |  |
| 1. Authorised agent or distributor of the manufacturer in Hong Kong
 |  |
| 1. Packing (if applicable)
 |  |
| 1. Delivery method and route (where the place of origin is outside Hong Kong)
 |  |
| 1. Warranty period of the item

(*Please refer to section G in Part 3 for details of the warranty service requirements*) | \_\_\_\_\_\_\_\_\_\_\_\_ months from Acceptance of the item(*Should not be less than 12 months*) |
| 1. Expected serviceable life (*Please specify any components of the item that cannot meet the serviceable life*)
 | The item shall have a serviceable life of \_\_\_\_\_\_\_ years from its date of acceptance except the following components: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(*Please also provide the expected life of these excluded components*) |

|  |  |
| --- | --- |
| **Item 1.7: Delivery Robot (Type 2)** |  |
| 1. Place of origin
 |  |
| 1. Name of manufacturer
 |  |
| 1. Address of the manufacturer’s factory or plant (“Manufacturing Plant”)
 |  |
| 1. Product name of the item
 |  |
| 1. Model number/ name/ version number of the item
 |  |
| 1. Authorised agent or distributor of the manufacturer in Hong Kong
 |  |
| 1. Packing (if applicable)
 |  |
| 1. Delivery method and route (where the place of origin is outside Hong Kong)
 |  |
| 1. Warranty period of the item

(*Please refer to section G in Part 3 for details of the warranty service requirements*) | \_\_\_\_\_\_\_\_\_\_\_\_ months from Acceptance of the item(*Should not be less than 12 months*) |
| 1. Expected serviceable life (*Please specify any components of the item that cannot meet the serviceable life*)
 | The item shall have a serviceable life of \_\_\_\_\_\_\_ years from its date of acceptance except the following components: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(*Please also provide the expected life of these excluded components*) |

**Part 3 – Indicative Technical Requirements**

*Notes to Suppliers for Completion of Part 3*

1. *Unless specified otherwise, the “****Goods****” in this Part 3* ***refers to section A1.1 below****.*
2. *The indicative technical requirements are for the purpose of collecting market information only. They are subject to changes and do not represent the final technical requirements of the intended tender.*
3. *Please indicate, as a point by point compliance statement, whether your proposed Goods “****Comply****” or “****Not Comply****” with an indicative technical requirement stated in Column II by ticking (🗸) in the appropriate box under* ***Column III*** *and* ***Column IV*** *respectively.*
4. ***Where applicable****, please quote the value of your proposed Goods in either Column III (if “****Comply****”) or Column IV (if “****Not Comply****”) respectively against corresponding indicative technical requirement (use additional sheet(s) if space is insufficient.*
5. *Please provide supporting documents (such as catalogues, user manual and/or operation manual, DICOM conformance statement, etc.) to illustrate the features of your proposed* robots for domestic use *against the corresponding indicative technical requirements.*

| **Column****I** | **Column** **II** | **Column** **III** | **Column****IV** |
| --- | --- | --- | --- |
| **Section** | **Technical Specification** | **Tick (🗸) the Appropriate Box***(For aspects “Not Comply”, please also provide alternative proposal, if any)* |
| **Comply** | **Not Comply** |
| **A** | **Technical Requirements** |  |  |
| **1** | **Overall Requirements** |  |  |
| 1.1 | One lot of robots for domestic use shall be capable of:1. performing different type of cleaning tasks such as floor vacuuming, washing, scrubbing, sweeping and dust mopping;
2. preventing the spread of infections and maintaining cleanliness; and
3. transporting goods and packages from one location to another.

(collectively, the “Goods”) |  |  |
| 1.2 | The Goods shall have the following items: |  |  |
|  | 1. two (2) sets of the all-in-one cleansing robot as detailed in section A2 below;
 |  |  |
|  | 1. two (2) sets of the scrubbing robot as detailed in section A3 below;
 |  |  |
|  | 1. four (4) sets of the mopping and scrubbing robot as detailed in section A4 below;
 |  |  |
|  | 1. two (2) sets of the sweeping robot as detailed in section A5 below;
 |  |  |
|  | 1. fifteen (15) sets of the infection control as detailed in section A6 below;
 |  |  |
|  | 1. eleven (11) sets of the delivery robot (type1) as detailed in section A7 below;
 |  |  |
|  | 1. four (4) sets of the delivery robot (type 2) as detailed in section A8 below.
 |  |  |
| 1.3 | Serviceable LifeThe Goods shall have a serviceable life of not less than 10 years from its Final Acceptance Date (“Serviceable Life”). |  |  |
| 1.4 | The successful tenderer shall be responsible for the provision of the implementation services, identified as Item 2 in Part 5, for the Goods as stipulated in section B below. |  |  |
| 1.5 | The successful tenderer shall be responsible for the provision of the Training, identified as Item 3 in Part 5, as stipulated in section Cbelow. |  |  |
| 1.6 | The successful tenderer shall be responsible for the supply of the Documentation for the Goods, identified as Item 4 in Part 5, as stipulated in section D below. |  |  |
| 1.7 | The successful tenderer shall be responsible for the performance of acceptance tests as stipulated in section E below.  |  |  |
| **2** | **Item 1.1: All-in-one Cleansing Robot** |  |  |
| 2.1 | Dimensions of the all-in-one cleansing robot shall be:  |  |  |
|  | 1. Length: ≤ 540mm;
 |  |  |
|  | 1. Width: ≤ 440mm;
 |  |  |
|  | 1. Height: ≤ 620mm.
 |  |  |
| 2.2 | The all-in-one cleansing robot shall be capable of vacuuming, sweeping, scrubbing and dust mopping. |  |  |
| 2.3 | The net weight of the all-in-one cleansing robot shall be not greater than 48kg. |  |  |
| 2.4 | The vacuuming and sweeping width of the all-in-one cleansing robot shall be not less than 410mm. |  |  |
| 2.5 | The scrubbing width of the all-in-one cleansing robot shall be not less than 330mm.  |  |  |
| 2.6 | The capacity of clean water tank of the all-in-one cleansing robot shall be not less than 11 litres. |  |  |
| 2.7 | The capacity of the recovery water tank of the all-in-one cleansing robot shall be not less than 10 litres. |  |  |
| 2.8 | The capacity of dust bag of the all-in-one cleansing robot shall be not less than 6 litres. |  |  |
| 2.9 | The capacity of trash can of the all-in-one cleansing robot shall be not less than 0.7 litre. |  |  |
| 2.10 | The all-in-one cleansing robot shall be equipped with HEPA grade filtration system or higher. |  |  |
| 2.11 | The all-in-one cleansing robot shall be equipped with bumpers, or equivalent, for the sake of safety to reduce the collision force in case of clash. |  |  |
| 2.12 | The all-in-one cleansing robot shall be a complete set of equipment with all standard accessories and components essential for its full operation, including but not limited to the following: |  |  |
|  | 1. Brush;
 |  |  |
|  | 1. Dust bag;
 |  |  |
|  | 1. Battery;
 |  |  |
|  | 1. Charging dock.
 |  |  |
| 2.13 | The main structure of the all-in-one cleansing robot shall be constructed with metal, or equivalent. |  |  |
| 2.14 | The chassis of the all-in-one cleansing robot shall be constructed with metal, or equivalent. |  |  |
| 2.15 | The cover of the all-in-one cleansing robot shall be constructed with ABS plastic, or equivalent. |  |  |
| 2.16 | The handle of the all-in-one cleansing robot shall be constructed with metal with protection painting for anti-corrosion, or equivalent. This shall comply with BS EN ISO standard 12944 or equivalent internation, national or other recognised standard or certification. |  |  |
| 2.17 | The castor of the all-in-one cleansing robot shall be constructed with metal and plastic, or equivalent. |  |  |
| 2.18 | The mapping capacity of the all-in-one cleansing robot shall be not less than 2000 square meters. |  |  |
| 2.19 | The cleansing efficiency of the all-in-one cleansing robot shall be not less than 400 square meters per hour. |  |  |
| 2.20 | The battery charging time of the all-in-one cleansing robot shall be not more than 2 hours to full charge. |  |  |
| 2.21 | The battery of the all-in-one cleansing robot shall be chargeable lithium-ion battery with 24V. |  |  |
| 2.22 | The run-time of the all-in-one cleansing robot shall be: |  |  |
|  | 1. not less than 4.5 hours for vacuuming;
 |  |  |
|  | 1. not less than 4.5 hours for scrubbing;
 |  |  |
|  | 1. not less than 14 hours for sweeping;
 |  |  |
|  | 1. not less than 10 hours for dust mopping.
 |  |  |
| 2.23 | The maximum cleansing speed of the all-in-one cleansing robot shall be not less than 0.8 meter per second. |  |  |
| 2.24 | The minimum passable width of the all-in-one cleansing robot shall be not greater than 700mm. |  |  |
| 2.25 | The minimum passable height of the all-in-one cleansing robot shall be not greater than 650mm. |  |  |
| 2.26 | The minimum turning width of the all-in-one cleansing robot shall be not greater than 800mm. |  |  |
| 2.27 | The all-in-one cleansing robot shall able to clean along the edges at zero distance. |  |  |
| 2.28 | The all-in-one cleansing robot shall be able to travel on both flat road and slope with gradeability of not greater than 8 degrees. |  |  |
| 2.29 | Password system or equivalent shall be provided to avoid unauthorized operation. |  |  |
| 2.30 | The all-in-one cleansing robot shall be able to operate off-line and to connect to 4G network for remoting. |  |  |
| 2.31 | The all-in-one cleansing robot shall be equipped with an autonomous system which means that when the operator presses the button tap, the all-in-one cleansing robot shall automatically operate in sheltered indoor environment. |  |  |
| 2.32 | The all-in-one cleansing robot shall be able to complete the cleansing tasks in an unescorted manner. |  |  |
| 2.33 | The following features shall be included in the mapping system: |  |  |
|  | 1. It shall be able to conduct mapping manually;
 |  |  |
|  | 1. It shall be able to proceed mapping automatically once the outside frame mapping is done;
 |  |  |
|  | 1. It shall be able to initiate from anywhere within the planned map as well as preselected initialization points;
 |  |  |
|  | 1. It shall be able to detect the uncleaned area and clean it automatically afterwards.
 |  |  |
| 2.34 | The mapping system shall support manual editing of virtual walls and highlight areas to avoid collision and damage. |  |  |
| 2.35 | The all-in-one cleansing robot shall be equipped with sensor device as safety systems to perceive static and dynamic obstacles in the working environment. |  |  |
| 2.36 | The all-in-one cleansing robot shall be able to product a warning voice through loudspeaker when an obstacle is detected. |  |  |
| 2.37 | The language of the warning voice shall be in Chinese and English.  |  |  |
| 2.38 | An emergency stop button shall be installed as part of the safety measures. |  |  |
| 2.39 | The all-in-one cleansing robot shall be able to detect and avoid obstacles in real time, that means, when sensing any obstacle ahead, the all-in-one cleansing robot shall try to detour the obstacles. In case that it is unable to get through, the all-in-one cleansing robot shall stop for the sake of safety. |  |  |
| 2.40 | Explanatory warning label showing the class of the laser sensor devices shall be clearly displayed on the all-in-one cleansing robot, whichever is applicable. |  |  |
| 2.41 | Other devices as part of the multi sensor system including but not limited to the following shall be provided:  |  |  |
|  | 1. LIDARs;
 |  |  |
|  | 1. 3D depth cameras;
 |  |  |
|  | 1. RGB camera;
 |  |  |
|  | 1. Integrated signal lights;
 |  |  |
|  | 1. Safety auto message playback.
 |  |  |
| 2.42 | The position, speed, and battery of the all-in-one cleansing robot shall be able to be monitored on PC or mobile devices. |  |  |
| 2.43 | Report and alert messages shall be automatically generated and sent to user’s email after completion of each task. |  |  |
| **3** | **Item 1.2: Scrubbing Robot** |  |  |
| 3.1 | Dimensions of the scrubbing robot shall be:  |  |  |
|  | 1. Length: ≤ 1400mm;
 |  |  |
|  | 1. Width: ≤ 1000mm;
 |  |  |
|  | 1. Height: ≤ 1500mm.
 |  |  |
| 3.2 | The scrubbing robot shall be capable of scrubbing in indoor and outdoor environments. |  |  |
| 3.3 | The weight of the scrubbing robot shall be not greater than 400kg. |  |  |
| 3.4 | The cleaning width of the scrubbing robot shall be not less than 750mm.  |  |  |
| 3.5 | The capacity of clean water tank of the scrubbing robot shall be not less than 75 litres. |  |  |
| 3.6 | The capacity of the recovery water tank of the scrubbing robot shall be not less than 50 litres. |  |  |
| 3.7 | The scrubbing robot shall be equipped with two trash trays. The capacity of each trash tray shall be not less than 0.2 litre. |  |  |
| 3.8 | The scrubbing robot shall be equipped with bumpers, or equivalent, for the sake of safety to reduce the collision force in case of clash. |  |  |
| 3.9 | The scrubbing robot shall be a complete set of equipment with all standard accessories/components essential for its full operation, including but not limited to the following: |  |  |
|  | 1. Brush;
 |  |  |
|  | 1. Pad holder;
 |  |  |
|  | 1. Squeegee set;
 |  |  |
|  | 1. Battery;
 |  |  |
|  | 1. Charging dock;
 |  |  |
| 3.10 | The main structure of the scrubbing robot shall be constructed with metal, or equivalent. |  |  |
| 3.11 | The chassis of the scrubbing robot shall be constructed with metal, or equivalent. |  |  |
| 3.12 | The cover of the scrubbing robot shall be constructed with ABS plastic, or equivalent. |  |  |
| 3.13 | The handle of the scrubbing robot shall be constructed with metal with protection painting for anti-corrosion coating, or equivalent. This shall comply comply with BS EN ISO standard 12944 or equivalent internation, national or other recognised standard or certification |  |  |
| 3.14 | The castor of the scrubbing robot shall constructed with metal and plastic, or equivalent. |  |  |
| 3.15 | The mapping capacity of the scrubbing robot shall be not less than 5000 square meters. |  |  |
| 3.16 | The cleansing efficiency of the scrubbing robot shall be not less than 3000 square meters per hour. |  |  |
| 3.17 | The battery charging time of the scrubbing robot shall be not more than 6 hours to full charge. |  |  |
| 3.18 | The battery of the scrubbing robot shall be chargeable lithium-ion battery with 24V. |  |  |
| 3.19 | The maximum run-time of the scrubbing robot shall be not less than 4 hours. |  |  |
| 3.20 | The maximum cleansing speed of the scrubbing robot shall be not less than 1.1 meters per second. |  |  |
| 3.21 | The minimum passable width of the scrubbing robot shall be not greater than 1200mm. |  |  |
| 3.22 | The minimum turning width of the scrubbing robot shall be not greater than 2000mm. |  |  |
| 3.23 | The minimum cleaning distance to the wall of the scrubbing robot shall be not greater than 200mm |  |  |
| 3.24 | The maximum passage obstacle height of the scrubbing robot shall be not less than 10mm. |  |  |
| 3.25 | The scrubbing robot shall be able to travel on both flat road and slope with gradeability of not greater than 5 degrees. |  |  |
| 3.26 | Key lock system or equivalent shall be provided to avoid unauthorized operation. |  |  |
| 3.27 | The scrubbing robot shall be able to operate off-line and to connect to 4G network for remoting. |  |  |
| 3.28 | The scrubbing robot shall be provided with dual operation mode: |  |  |
|  | 1. autonomous mode;
 |  |  |
|  | 1. manual mode.
 |  |  |
| 3.29 | The operation mode shall be able to switch with a simple command.  |  |  |
| 3.30 | The manual mode shall be able to carry the scrubbing robot to navigate around the site. |  |  |
| 3.31 | The scrubbing robot shall be equipped with AI navigation system, which provides real-time auto-cover of maps and plans, and cleaning paths to maximize cleaning coverages in a changing environment. |  |  |
| 3.32 | The following features shall be included in the mapping system: |  |  |
|  | 1. It shall be able to conduct mapping manually;
 |  |  |
|  | 1. It shall be able to proceed mapping automatically once the outside frame mapping is done;
 |  |  |
|  | 1. It shall be able to initiate from anywhere within the planned map as well as preselected initialization points;
 |  |  |
|  | 1. It shall be able to detect the uncleaned area and clean it automatically afterwards.
 |  |  |
| 3.33 | The scrubbing robot shall be capable of remote task scheduling, activation and maintenance, which provides a real-time data transmission and monitoring, and gets real-time information of the operational status and cleaning progress. |  |  |
| 3.34 | The position, speed, and battery of the scrubbing robot shall be able to be monitored on PC or mobile devices. |  |  |
| 3.35 | The scrubbing robot shall be able to create the flexible task combination, customizing cleaning plans in complex scenarios, which including but not limited to: |  |  |
|  | 1. Teach and follow;
 |  |  |
|  | 1. Auto-cover;
 |  |  |
|  | 1. Real-time auto-cover;
 |  |  |
|  | 1. Sketch.
 |  |  |
| 3.36 | The scrubbing robot shall include the recovery function, of which the scrubbing robot shall be able to resume previous unfinished task after interruption. |  |  |
| 3.37 | Report and alert messages shall be automatically generated and sent to user’s email after completion of each task. |  |  |
| 3.38 | The scrubbing robot shall be equipped with sensor device as safety systems to perceive static and dynamic obstacles in the working environment. |  |  |
| 3.39 | The scrubbing robot shall be able to product a warning voice through loudspeaker when an obstacle is detected. |  |  |
| 3.40 | The language of the warning voice shall be in Chinese and English. |  |  |
| 3.41 | An emergency stop button shall be installed as part of the safety measures. |  |  |
| 3.42 | The scrubbing robot shall be able to detect and avoid obstacles in real time, that means, when sensing any obstacle ahead, the scrubbing robot shall try to detour the obstacles. In case that it is unable to get through, the scrubbing robot shall stop for the sake of safety. |  |  |
| 3.43 | Explanatory warning label showing the class of the laser sensor devices shall be clearly displayed on the scrubbing robot, whichever is applicable. |  |  |
| 3.44 | Other devices as part of the multi sensor system including but not limited to the following shall be provided:  |  |  |
|  | 1. LIDARs;
 |  |  |
|  | 1. 3D depth cameras;
 |  |  |
|  | 1. Anti-drop sensor;
 |  |  |
|  | 1. Integrated signal lights;
 |  |  |
|  | 1. Safety auto message playback.
 |  |  |
| 3.45 | At least 2 nos. of work station, one each for the scrubbing robot, shall be provided with the following characteristics and features: |  |  |
| 3.45.1 | Dimension of the work station shall be: |  |  |
|  | 1. Length < 1260mm;
 |  |  |
|  | 1. Width < 643mm;
 |  |  |
|  | 1. Height < 1270mm.
 |  |  |
| 3.45.2 | The work station shall be capable of: |  |  |
|  | 1. filing up the clean water tank of the scrubbing robot with clean water;
 |  |  |
|  | 1. discharging the dirty water from the recovery water tank of the scrubbing robot; and
 |  |  |
|  | 1. auto charging the battery of the scrubbing robot.
 |  |  |
| 3.45.3 | Utility connection of the work station for the scrubbing robot: |  |  |
|  | 1. electrical requirement: voltage requirement: 220V +6%, 50Hz +2%, power less than 1200W, single-phase, A.C.
 |  |  |
|  | 1. cold portable water requirement: not less than 0.5 inch NPT.
 |  |  |
|  | 1. drain requirement: at least 1.25 inches NPT.
 |  |  |
| 3.46 | Auto door control module shall be provided to allow the scrubbing robot to use auto doors. |  |  |
| 3.46.1 | Auto door control module shall interface with any kinds of automatic door such as swing and hold open and slide and hold open. A dry contact interface auto door control module shall be installed and integrated an external access on top of the access control by either door release button, hand-waving, card access or key pad. |  |  |
| 3.46.2 | Auto door control module shall be installed and mounted next to the existing door access control unit for ease of signal connection. |  |  |
| 3.46.3 | Electrical requirement of the auto door control module:voltage requirement: 220volt +5%, 50Hz +2%, 13A, single-phase A.C. |  |  |
| **4** | **Item 1.3: Mopping and Scrubbing Robot** |  |  |
| 4.1 | Dimensions of the mopping and scrubbing robot shall be:  |  |  |
|  | 1. Length: ≤ 900mm;
 |  |  |
|  | 1. Width: ≤ 750mm;
 |  |  |
|  | 1. Height: ≤ 1100mm.
 |  |  |
| 4.2 | The mopping and scrubbing robot shall be capable of scrubbing and mopping. |  |  |
| 4.3 | The weight of the mopping and scrubbing robot shall be not greater than 150kg. |  |  |
| 4.4 | The cleaning width of the mopping and scrubbing robot shall be not less than 500mm. |  |  |
| 4.5 | The capacity of clean water tank of the mopping and scrubbing robot shall be not less than 24 litres. |  |  |
| 4.6 | The capacity of the recovery water tank of the mopping and scrubbing robot shall be not less than 18 litres. |  |  |
| 4.7 | The mopping and scrubbing robot shall be equipped with two trash trays. The capacity of each trash tray shall be not less than 0.6 litre. |  |  |
| 4.8 | The mopping and scrubbing robot shall be equipped with bumpers, or equivalent, for the sake of safety to reduce the collision force in case of clash. |  |  |
| 4.9 | The mopping and scrubbing robot shall be a complete set of equipment with all standard accessories/components essential for its full operation, including but not limited to the following: |  |  |
|  | 1. Brush;
 |  |  |
|  | 1. Battery;
 |  |  |
|  | 1. Charging dock.
 |  |  |
| 4.10 | The main structure of the mopping and scrubbing robot shall be constructed with metal, or equivalent. |  |  |
| 4.11 | The chassis of the mopping and scrubbing robot shall be constructed with metal, or equivalent. |  |  |
| 4.12 | The cover of the mopping and scrubbing robot shall be constructed with ABS plastic, or equivalent. |  |  |
| 4.13 | The handle of the mopping and scrubbing robot shall be constructed with metal with protection painting for anti-corrosion, or equivalent. This shall comply with BS EN ISO 12944 or equivalent, international, national or other recognized standard or certification. |  |  |
| 4.14 | The castor of the mopping and scrubbing robot shall be constructed with metal and plastic, or equivalent. |  |  |
| 4.15 | The mapping capacity of the mopping and scrubbing robot shall be not less than 5000 square meters. |  |  |
| 4.16 | The cleansing efficiency of the mopping and scrubbing robot shall be not less than 1600 square meters per hour. |  |  |
| 4.17 | The battery charging time of the mopping and scrubbing robot shall be not more than 1.5 hours to full charge. |  |  |
| 4.18 | The battery of the mopping and scrubbing robot shall be chargeable lithium-ion battery with 24 volt. |  |  |
| 4.19 | The run-time of the mopping and scrubbing robot shall be:  |  |  |
|  | 1. not less than 6 hours for dust mopping;
 |  |  |
|  | 1. not less than 2 hours for scrubbing.
 |  |  |
| 4.20 | The maximum cleansing speed of the mopping and scrubbing robot shall be not less than 1 meter per second. |  |  |
| 4.21 | The mopping and scrubbing robot shall be provided with dual operation mode: |  |  |
|  | 1. autonomous mode;
 |  |  |
|  | 1. manual mode.
 |  |  |
| 4.22 | The minimum passable width of the mopping and scrubbing robot shall be: |  |  |
|  | 1. not greater than 1000mm for autonomous mode.
 |  |  |
|  | 1. not greater than 900mm for manual mode.
 |  |  |
| 4.23 | The minimum turning width of the mopping and scrubbing robot shall be: |  |  |
|  | 1. not greater than 1100mm for autonomous mode.
 |  |  |
|  | 1. not greater than 1000mm for manual mode.
 |  |  |
| 4.24 | The minimum cleaning distance from wall of the mopping and scrubbing robot shall be not greater than 100mm.  |  |  |
| 4.25 | The mopping and scrubbing robot shall be able to travel on both flat road and slope with gradeability of not greater than 4.6 degrees. |  |  |
| 4.26 | Key lock system or equivalent shall be provided to avoid unauthorized operation. |  |  |
| 4.27 | The mopping and scrubbing robot shall be able to operate off-line and to connect to 4G network for remoting. |  |  |
| 4.28 | The mopping and scrubbing robot shall be equipped with AI navigation system, which provides real-time auto-cover of maps and plans, and cleaning paths to maximize cleaning coverages in a changing environment. |  |  |
| 4.29 | The following features shall be included in the mapping system: |  |  |
|  | 1. It shall be able to conduct mapping manually;
 |  |  |
|  | 1. It shall be able to proceed mapping automatically once the outside frame mapping is done;
 |  |  |
|  | 1. It shall be able to initiate from anywhere within the planned map as well as preselected initialization points;
 |  |  |
|  | 1. It shall be able to detect the uncleaned area and clean it automatically afterwards.
 |  |  |
| 4.30 | The mopping and scrubbing robot shall be capable of remote task scheduling, activation and maintenance, which provides a real-time data transmission and monitoring, and gets real-time information of the operational status and cleaning progress. |  |  |
| 4.31 | The position, speed, and battery of the mopping and scrubbing robot shall be able to be monitored on PC or mobile devices. |  |  |
| 4.32 | The mopping and scrubbing robot shall be able to create the flexible task combination, customizing cleaning plans in complex scenarios, which including but not limited to: |  |  |
|  | 1. Teach and follow;
 |  |  |
|  | 1. Auto-cover;
 |  |  |
|  | 1. Real-time auto-cover;
 |  |  |
|  | 1. Sketch.
 |  |  |
| 4.33 | The mopping and scrubbing robot shall include the recovery function, of which the mopping and scrubbing robot shall be able to resume previous unfinished task after interruption. |  |  |
| 4.34 | Report and alert messages shall be automatically generated and sent to user’s email after completion of each task. |  |  |
| 4.35 | The mopping and scrubbing robot shall be equipped with sensor device as safety systems to perceive static and dynamic obstacles in the working environment. |  |  |
| 4.36 | The mopping and scrubbing robot shall be able to product a warning voice through loudspeaker when an obstacle is detected. |  |  |
| 4.37 | The language of the warning voice shall be in Chinese and English. |  |  |
| 4.38 | An emergency stop button shall be installed as part of the safety measures. |  |  |
| 4.39 | The mopping and scrubbing robot shall be able to detect and avoid obstacles in real time, that means, when sensing any obstacle ahead, the mopping and scrubbing robot shall try to detour the obstacles. In case that it is unable to get through, the mopping and scrubbing robot shall stop for the sake of safety. |  |  |
| 4.40 | Explanatory warning label showing the class of the laser sensor devices shall be clearly displayed on the mopping and scrubbing robot, whichever is applicable. |  |  |
| 4.41 | Other devices as part of the multi sensor system including but not limited to the following shall be provided:  |  |  |
|  | 1. LIDAR;
 |  |  |
|  | 1. 3D depth cameras;
 |  |  |
|  | 1. Anti-drop sensor;
 |  |  |
|  | 1. Integrated signal lights;
 |  |  |
|  | 1. Safety auto message playback.
 |  |  |
| 4.42 | At least 4 nos. of work station, one each for the mopping and scrubbing robot, shall be provided with the following characteristics and features: |  |  |
| 4.42.1 | Dimension of the work station shall be: |  |  |
|  | 1. Length < 450mm;
 |  |  |
|  | 1. Width < 355mm;
 |  |  |
|  | 1. Height < 1390mm;
 |  |  |
| 4.42.2 | The work station shall be capable of: |  |  |
|  | 1. filing up the clean water tank of the mopping and scrubbing robot with clean water;
 |  |  |
|  | 1. discharging the dirty water from the recovery water tank of the mopping and scrubbing robot; and
 |  |  |
|  | 1. auto charging the battery of the mopping and scrubbing robot.
 |  |  |
| 4.42.3 | Utility connection of the work station shall be: |  |  |
|  | 1. electrical requirement: voltage requirement: 220V +6%, 50Hz +2%, power less than 1200W, single-phase, A.C.
 |  |  |
|  | 1. cold portable water requirement: not less than 0.5 inch NPT.
 |  |  |
|  | 1. drain requirement: at least 1.25 inches NPT.
 |  |  |
| 4.43 | Auto door control module shall be provided to allow the mopping and scrubbing robot to use auto doors.  |  |  |
| 4.43.1 | Auto door control module shall interface with any kinds of automatic door such as swing and hold open and slide and hold open. A dry contact interface auto door control module shall be installed and integrated an external access on top of the access control by either door release button, hand-waving, card access or key pad. |  |  |
| 4.43.2 | Auto door control module shall be installed and mounted next to the existing door access control unit for ease of signal connection. |  |  |
| 4.43.3 | Electrical requirement of the auto door control module:voltage requirement: 220 volt +5%, 50Hz +2%, 13A, single-phase A.C.  |  |  |
| **5** | **Item 1.4: Sweeping Robot** |  |  |
| 5.1 | Dimensions of the sweeping robot shall be:  |  |  |
|  | 1. Length: ≤ 1600mm;
 |  |  |
|  | 1. Width: ≤ 1100mm;
 |  |  |
|  | 1. Height: ≤ 1500mm;
 |  |  |
| 5.2 | The sweeping robot shall be capable of cleaning in indoor and outdoor environments. |  |  |
| 5.3 | The sweeping robot shall be able to absorb trash of various shapes and sizes, including but not limited to beverage bottles, milk cartons, cigarette butts, bamboo sticks, fine dust and sand. |  |  |
| 5.4 | The cleaning width of the sweeping robot shall be not less than 1100mm. |  |  |
| 5.5 | The unladen weight of the sweeping robot shall be not greater than 500kg. |  |  |
| 5.6 | The sweeping robot shall be equipped with at least one trash tray. The trash tray shall have, but not limited to, the following features:  |  |  |
| 5.6.1 | The size (length x width x height) of the trash tray shall be not greater than 200mm x 50mm x 50mm. |  |  |
| 5.6.2 | The weight of the trash tray shall be not greater than 250g. |  |  |
| 5.6.3 | The capacity of trash tray shall be not less than 60 litres. |  |  |
| 5.7 | The sweeping robot shall be equipped with bumpers, or equivalent, for the sake of safety to reduce the collision force in case of clash. |  |  |
| 5.8 | The sweeping robot shall be a complete set of equipment with all standard accessories/components essential for its full operation, including but not limited to the following: |  |  |
|  | 1. Brush;
 |  |  |
|  | 1. Battery;
 |  |  |
|  | 1. Charging dock.
 |  |  |
| 5.9 | The main structure of the sweeping robot shall be constructed with metal, or equivalent. |  |  |
| 5.10 | The chassis of the sweeping robot shall be constructed with metal, or equivalent. |  |  |
| 5.11 | The cover of the sweeping robot shall be constructed with ABS plastic, or equivalent. |  |  |
| 5.12 | The steering wheel of the sweeping robot shall be constructed with metal with protection painting for anti-corrosion, or equivalent. This shall comply with BS EN ISO 12944 or equivalent, international, national or other recognized standard and certification. |  |  |
| 5.13 | The castor of the sweeping robot shall be constructed with metal and plastic, or equivalent. |  |  |
| 5.14 | The mapping capacity of the sweeping robot shall be not less than 8000 square meters. |  |  |
| 5.15 | The cleansing efficiency of the sweeping robot shall be not less than 5000 square meters per hour. |  |  |
| 5.16 | The battery charging time of the sweeping robot shall be not more than 4 hours to full charge. |  |  |
| 5.17 | The battery of the sweeping robot shall be chargeable lithium-ion battery with 24 volt. |  |  |
| 5.18 | The run-time of the sweeping robot shall be not less than 4 hours. |  |  |
| 5.19 | The maximum moving speed of the sweeping robot shall be not less than 1.2 meter per second. |  |  |
| 5.20 | The maximum air flow volume shall be not less than 2 cubic meters per minute. |  |  |
| 5.21 | The sweeping robot shall be provided with auto dumping function. The sweeping robot shall be able to move to the dumping point and complete the dumping process independently.  |  |  |
| 5.22 | The sweeping robot shall be provided with dual operation mode: |  |  |
|  | 1. autonomous mode;
 |  |  |
|  | 1. manual mode.
 |  |  |
| 5.23 | The minimum passable width of the sweeping robot shall be: |  |  |
|  | 1. not greater than 1200mm for autonomous mode;
 |  |  |
|  | 1. not greater than 1000mm for manual mode.
 |  |  |
| 5.24 | The minimum turning width of the sweeping robot shall be: |  |  |
|  | 1. not greater than 2000mm for autonomous mode;
 |  |  |
|  | 1. not greater than 1800mm for manual mode.
 |  |  |
| 5.25 | The sweeping robot shall be able to travel on both flat road and slope with gradeability of not greater than 11 degrees. |  |  |
| 5.26 | Key lock system or equivalent shall be provided to avoid unauthorized operation. |  |  |
| 5.27 | The sweeping robot shall be able to operate off-line and to connect to 4G network for remoting. |  |  |
| 5.28 | The sweeping robot shall be equipped with AI navigation system, which provides real-time auto-cover of maps and plans, and cleaning paths to maximize cleaning coverages in a changing environment. |  |  |
| 5.29 | The following features shall be included in the mapping system: |  |  |
|  | 1. It shall be able to conduct mapping manually.
 |  |  |
|  | 1. It shall be able to proceed mapping automatically once the outside frame mapping is done.
 |  |  |
|  | 1. It shall be able to initiate from anywhere within the planned map as well as preselected initialization points.
 |  |  |
|  | 1. It shall be able to detect the uncleaned area and clean it automatically afterwards.
 |  |  |
| 5.30 | The sweeping robot shall be capable of remote task scheduling, activation and maintenance, which provides a real-time data transmission and monitoring, and gets real-time information of the operational status and cleaning progress. |  |  |
| 5.31 | The position, speed, and battery of the sweeping robot shall be able to be monitored on PC or mobile devices. |  |  |
| 5.32 | The sweeping robot shall be able to create the flexible task combination, customizing cleaning plans in complex scenarios, which including but not limited to: |  |  |
|  | 1. Teach and follow;
 |  |  |
|  | 1. Auto-cover;
 |  |  |
|  | 1. Real-time auto-cover;
 |  |  |
|  | 1. Sketch.
 |  |  |
| 5.33 | The sweeping robot shall include the recovery function, of which the sweeping robot shall be able to resume previous unfinished task after interruption. |  |  |
| 5.34 | Report and alert messages shall be automatically generated and sent to user’s email after completion of each task. |  |  |
| 5.35 | LED blue protection light projector shall be installed as part of the safety measures. |  |  |
| 5.36 | The sweeping robot shall be equipped with sensor device as safety systems to perceive static and dynamic obstacles in the working environment. |  |  |
| 5.37 | The sweeping robot shall be able to product a warning voice through loudspeaker when an obstacle is detected. |  |  |
| 5.38 | The language of the warning voice shall be in Chinese and English. |  |  |
| 5.39 | An emergency stop button shall be installed as part of the safety measures. |  |  |
| 5.40 | The sweeping robot shall be able to detect and avoid obstacles in real time, that means, when sensing any obstacle ahead, the sweeping robot shall try to detour the obstacles. In case that it is unable to get through, the sweeping robot shall stop for the sake of safety. |  |  |
| 5.41 | Explanatory warning label showing the class of the laser sensor devices shall be clearly displayed on the sweeping robot, whichever is applicable. |  |  |
| 5.42 | Other devices as part of the multi sensor system including but not limited to the following shall be provided:  |  |  |
|  | 1. LIDAR;
 |  |  |
|  | 1. 3D depth cameras;
 |  |  |
|  | 1. Anti-drop sensor;
 |  |  |
|  | 1. Air pressure collision sensor.
 |  |  |
| **6** | **Item 1.5: Infection Control Robot** |  |  |
| 6.1 | Dimensions of the infection control robot shall be:  |  |  |
|  | 1. Length: ≤ 560mm;
 |  |  |
|  | 1. Width: ≤ 550mm;
 |  |  |
|  | 1. Height: ≤ 1350mm.
 |  |  |
| 6.2 | The infection control robot shall be capable of performing ultrasonic dry mist and ultraviolet-C disinfection. |  |  |
| 6.3 | The weight of the infection control robot shall be not greater than 60kg. |  |  |
| 6.4 | The infection control robot shall be provided with 4 spray nozzles pointing four directions for disinfection with disinfectant particle size of less than 10µm to ensure full contact with microorganisms. |  |  |
| 6.4.1 | Disinfectant solution shall include at least hypochlorous acid. |  |  |
| 6.4.2 | The capacity of the tank for storing disinfectants shall be at least 15 litres. |  |  |
| 6.5 | The infection control robot shall be equipped with 4 nos. of 36W ultraviolent-C lamp for disinfection and illumination of at least 180μW/cm² within 1 metre.  |  |  |
| 6.6 | The infection control robot shall be equipped with castors for movement at speed adjustable from 0.1 to 1.2 meter per second. |  |  |
| 6.7 | The infection control robot shall be equipped with batteries with capacity for maximum full operation time up to 6 hours. |  |  |
| 6.8 | The battery charging time of the infection control robot shall be not more than 4 hours to full charge. |  |  |
| 6.9 | The battery of the infection control robot shall be chargeable battery with 24 volt. |  |  |
| 6.10 | The infection control robot shall be able to travel on both flat road and slope with gradeability of not greater than 5 degrees. |  |  |
| 6.11 | The main structure of the infection control robot shall be constructed with metal, or equivalent. |  |  |
| 6.12 | The chassis of the infection control robot shall be constructed with metal, or equivalent. |  |  |
| 6.13 | The cover of the infection control robot shall be constructed with ABS plastic, or equivalent. |  |  |
| 6.14 | The castor of the infection control robot shall constructed with metal and plastic, or equivalent. |  |  |
| 6.15 | Key lock system or equivalent shall be provided to avoid authorized operation. |  |  |
| 6.16 | The infection control robot shall be able to operate off-line and to connect to 4G network for remote operating. |  |  |
| 6.17 | The following features shall be included in the mapping system: |  |  |
|  | 1. It shall be able to conduct mapping manually.
 |  |  |
|  | 1. It shall be able to proceed mapping automatically once the outside frame mapping is done.
 |  |  |
|  | 1. It shall be able to initiate from anywhere within the planned map as well as preselected initialization points.
 |  |  |
|  | 1. It shall be able to detect the area not disinfected and disinfect it automatically afterwards
 |  |  |
| 6.18 | The infection control robot shall be capable of remote task scheduling, activation and maintenance, which provides a real-time data transmission and monitoring, and gets real-time information of the operational status and disinfection progress. |  |  |
| 6.19 | The infection control robot shall be capable to be preset its routes and stationary position, and scheduled its tasks with data and time for carrying out disinfection tasks. |  |  |
| 6.20 | The position, speed, and battery of the infection control robot shall be able to be monitored on PC or mobile devices. |  |  |
| 6.21 | The infection control robot shall be equipped with 3D obstacle technology and detector cameras so as to identify obstacles within 40 meters when in operation. The infection control robot shall stop moving towards the obstacles within the reaction time equal or less than 0.5 second. |  |  |
| 6.22 | The infection control robot shall be able to terminate its automation to spray disinfectants when the storage level of disinfectant is low. |  |  |
| 6.23 | The infection control robot shall include the recovery function, of which the infection control robot shall be able to resume previous unfinished task after interruption. |  |  |
| 6.24 | The infection control robot shall be able to turn off the ultraviolent-C lamp and stop spraying of disinfectants when the infection control robot detects a person within 3 meters. |  |  |
| 6.25 | The infection control robot shall be linked to a docking station and able to be operated automatically up to six hours. Once low in power, the infection control robot shall return to its docking station for electricity charging.  |  |  |
| 6.26 | The dimension of the docking station of the infection control robot shall be: |  |  |
|  | 1. Length: ≤ 380mm;
 |  |  |
|  | 1. Width: ≤ 380mm;
 |  |  |
|  | 1. Height: ≤ 150mm.
 |  |  |
| 6.27 | The infection control robot shall be equipped with enclosed cabin with motorized interlocking mechanism to provide protection to the ultraviolet-C lamp while not operating. |  |  |
| 6.28 | Report and alert messages shall be automatically generated and sent to user’s email after completion of each disinfection task. |  |  |
| 6.29 | Other devices as part of the multi sensor system including but not limited to the following should be provided: |  |  |
|  | 1. RGBD camera;
 |  |  |
|  | 1. 3D perception;
 |  |  |
|  | 1. Wave motion sensor.
 |  |  |
| 6.30 | Auto door control module shall be provided to allow the infection control robot to use auto doors.  |  |  |
| 6.30.1 | Auto door control module shall interface with any kinds of automatic door such as swing and hold open and slide and hold open. A dry contact interface auto door control module shall be installed and integrated an external access on top of the access control by either door release button, hand-waving, card access or key pad. |  |  |
| 6.30.2 | Auto door control module shall be installed and mounted next to the existing door access control unit for ease of signal connection. |  |  |
| 6.30.3 | Electrical requirement of the auto door control module:voltage requirement: 220volt +5%, 50Hz +2%, 13A, single-phase A.C.  |  |  |
| **7** | **Item 1.6: Delivery Robot (Type 1)** |  |  |
| 7.1 | Dimensions of the delivery robot (type 1) shall be: |  |  |
|  | 1. Length: < 530mm;
 |  |  |
|  | 1. Width: < 500mm;
 |  |  |
|  | 1. Length: < 1300mm;
 |  |  |
| 7.2 | The delivery robot (type 1) shall be capable of transporting materials with total loading not exceeding 40kg. |  |  |
| 7.3 | The weight of the delivery robot (type 1) shall be not greater than 46kg |  |  |
| 7.4 | The delivery robot (type 1) shall have at least 4 layers and be provided with at least 3 trays for transporting materials. |  |  |
| 7.5 | The layers of the delivery robot (type 1) shall have the following features: |  |  |
| 7.5.1 | The space of the first layer shall be 486mm (length) x 384mm (width) x 195mm (height) (+ 5%). The space of the second and third layer shall be 486 (length) x 384mm (width) x 166mm (height) (+ 5%).  |  |  |
| 7.5.2 | The load capacity of each layer, including the bottom layer without tray shall be not less than 10kg. |  |  |
| 7.6 | The delivery robot (type 1) shall be equipped with bumpers, or equivalent, for the sake of safety to reduce the collision force in case of clash. |  |  |
| 7.7 | The delivery robot (type 1) shall be equipped with operation screen of size not less than 11inches. |  |  |
| 7.8 | The delivery robot (type 1) shall be a complete set of equipment with all standard accessories and components essential for its full operation, including but not limited to the following: |  |  |
|  | 1. Trays;
 |  |  |
|  | 1. Battery;
 |  |  |
|  | 1. Charging pile;
 |  |  |
| 7.9 | The main structure of the delivery robot (type 1) shall be constructed with metal, or equivalent. |  |  |
| 7.10 | The chassis of the delivery robot (type 1) shall be constructed with metal, or equivalent. |  |  |
| 7.11 | The wheels of the delivery robot (type 1) shall be constructed with metal and plastic, or equivalent. |  |  |
| 7.12 | The maximum moving speed of the delivery robot (type 1) shall be not greater than 0.8 meter per second. |  |  |
| 7.13 | The minimum passable width of the delivery robot (type 1) shall be not greater than 700mm. |  |  |
| 7.14 | The maximum coverage area of the delivery robot (type 1) shall be not less than 8000 square meters. |  |  |
| 7.15 | The delivery robot (type 1) shall be equipped with batteries with capacity for maximum full operation time not less than 12 hours. |  |  |
| 7.16 | The battery charging time of the delivery robot (type 1) shall be not more than 4 hours to full charge. |  |  |
| 7.17 | The battery of the delivery robot (type 1) shall be chargeable lithium-ion battery with 24volt. |  |  |
| 7.18 | The delivery robot (type 1) with layers shall be able to travel on both flat road and slope with gradeability of not greater than 5 degrees. |  |  |
| 7.19 | The delivery robot (type 1) shall be able to operate off-line and to connect to 4G network for remoting. |  |  |
| 7.20 | The delivery robot (type 1) shall be equipped with an autonomous system which means that when the operator presses the button tap, the delivery robot with layers shall automatically operate in sheltered indoor environment. |  |  |
| 7.21 | The position, speed, and battery of the delivery robot (type 1) shall be able to be monitored on PC or mobile devices. |  |  |
| 7.22 | The delivery robot (type 1) shall be able to complete the material delivering tasks in an unescorted manner. |  |  |
| 7.23 | The following features shall be included in the path planning system: |  |  |
|  | 1. It shall be able to conduct mapping manually;
 |  |  |
|  | 1. It shall be able to proceed mapping automatically once the outside frame mapping is done;
 |  |  |
|  | 1. It shall be able to initiate from anywhere within the planned map as well as preselected initialization points.
 |  |  |
| 7.24 | The delivery robot (type 1) shall be equipped with sensor device as safety systems to perceive static and dynamic obstacles in the working environment. |  |  |
| 7.25 | An emergency stop button shall be installed as part of the safety measures. |  |  |
| 7.26 | The delivery robot (type 1) shall be able to detect and avoid obstacles in real time, that means, when sensing any obstacle ahead, the delivery robot (type 1) shall try to detour the obstacles. In case that it is unable to get through, the delivery robot with layers shall stop for the sake of safety. |  |  |
| 7.27 | The delivery robot (type 1) shall include the recovery function, of which the delivery robot (type 1) shall be able to resume previous unfinished task after interruption. |  |  |
| 7.28 | Explanatory warning label showing the class of the laser sensor devices shall be clearly displayed on the delivery robot (type 1), whichever is applicable. |  |  |
| 7.29 | Other devices as part of the multi sensor system including but not limited to the following shall be provided:  |  |  |
|  | 1. LIDARs;
 |  |  |
|  | 1. Vision sensors;
 |  |  |
|  | 1. Emergency sensing strip.
 |  |  |
| 7.30 | Auto door control module shall be provided to allow the delivery robot (type 1) to use auto doors.  |  |  |
| 7.30.1 | Auto door control module shall interface with any kinds of automatic door such as swing and hold open and slide and hold open. A dry contact interface auto door control module shall be installed and integrated an external access on top of the access control by either door release button, hand-waving, card access or key pad. |  |  |
| 7.30.2 | Auto door control module shall be installed and mounted next to the existing door access control unit for ease of signal connection. |  |  |
| 7.30.3 | Electrical requirement of the auto door control module:voltage requirement: 220volt +5%, 50Hz +2%, 13A, single-phase A.C.  |  |  |
| **8** | **Item 1.7: Delivery Robot (Type 2)** |  |  |
| 8.1 | Dimensions of the delivery robot (type 2) shall be:  |  |  |
|  | 1. Length: ≤ 650mm;
 |  |  |
|  | 1. Width: ≤ 490mm;
 |  |  |
|  | 1. Height: ≤ 390mm.
 |  |  |
| 8.2 | The delivery robot (type 2) shall be capable of transporting materials of total loading not exceeding 70kg.  |  |  |
| 8.3 | The delivery robot (type 2) shall be a complete set of equipment with all standard accessories and components essential for its full operation, including but not limited to the following: |  |  |
|  | 1. Battery;
 |  |  |
|  | 1. Charging dock.
 |  |  |
| 8.4 | The main structure of the delivery robot (type 2) shall be constructed with metal, or equivalent. |  |  |
| 8.5 | The chassis of the delivery robot (type 2) shall be constructed with metal, or equivalent. |  |  |
| 8.6 | The wheels of the delivery robot (type 2) shall be constructed with metal and plastic, or equivalent. |  |  |
| 8.7 | The moving speed of the delivery robot (type 2) shall be not greater than 1.5 meters per second. |  |  |
| 8.8 | The minimum passable width of the delivery robot (type 2) shall be not greater than 1000mm. |  |  |
| 8.9 | The delivery robot (type 2) shall be equipped with batteries with capacity for maximum full operation time not less than 15 hours. |  |  |
| 8.10 | The battery charging time of the delivery robot (type 2) shall be not more than 4 hours to full charge. |  |  |
| 8.11 | The battery of the delivery robot (type 2) shall be chargeable lithium-ion battery with 24 volt. |  |  |
| 8.12 | The delivery robot (type 2) shall be able to travel on both flat road and slope with gradeability of not greater than 2.8 degrees. |  |  |
| 8.13 | The delivery robot (type 2) shall be able to operate off-line and to connect to 4G network for remoting. |  |  |
| 8.14 | The delivery robot (type 2) shall be equipped with an autonomous system which means that when the operator presses the button tap, the delivery robot shall automatically operate in sheltered indoor environment. |  |  |
| 8.15 | The delivery robot (type 2) shall be able to complete the material delivering tasks in an unescorted manner. |  |  |
| 8.16 | The position, speed, and battery of the delivery robot (type 2) shall be able to be monitored on PC or mobile devices. |  |  |
| 8.17 | The following features shall be included in the path planning system: |  |  |
|  | 1. It shall be able to conduct mapping manually.
 |  |  |
|  | 1. It shall be able to proceed mapping automatically once the outside frame mapping is done.
 |  |  |
|  | 1. It shall be able to initiate from anywhere within the planned map as well as preselected initialization points.
 |  |  |
| 8.18 | The delivery robot (type 2) shall be equipped with sensor device as safety systems to perceive static and dynamic obstacles in the working environment. |  |  |
| 8.19 | An emergency stop button shall be installed as part of the safety measures. |  |  |
| 8.20 | The delivery robot (type 2) shall be able to detect and avoid obstacles in real time, that means, when sensing any obstacle ahead, the delivery robot (type 2) shall try to detour the obstacles. In case that it is unable to get through, the delivery robot (type 2) shall stop for the sake of safety. |  |  |
| 8.21 | The delivery robot (type 2) shall include the recovery function, of which the delivery robot (type 2) shall be able to resume previous unfinished task after interruption. |  |  |
| 8.22 | Explanatory warning label showing the class of the laser sensor devices shall be clearly displayed on the delivery robot (type 2), whichever is applicable. |  |  |
| 8.23 | Other devices as part of the multi sensor system including but not limited to the following shall be provided:  |  |  |
|  | 1. LIDAR;
 |  |  |
|  | 1. Depth sensor;
 |  |  |
|  | 1. Ultrasonic sensors;
 |  |  |
|  | 1. Light indicators.
 |  |  |
| 8.24 | Auto door control module shall be provided to allow the delivery robot (type 2) to use auto doors.  |  |  |
| 8.24.1 | Auto door control module shall interface with any kinds of automatic door such as swing and hold open and slide and hold open. A dry contact interface auto door control module shall be installed and integrated an external access on top of the access control by either door release button, hand-waving, card access or key pad. |  |  |
| 8.24.2 | Auto door control module shall be installed and mounted next to the existing door access control unit for ease of signal connection. |  |  |
| 8.24.3 | Electrical requirement of the auto door control module:voltage requirement: 220 volt +5%, 50Hz +2%, 13A, single-phase A.C.  |  |  |
| **B** | **Implementation Services** |  |  |
| 1 | The Goods shall be installed, tested and become ready for use by the timeline specified in Part 4 with all costs included. |  |  |
| **2** | **Installation of the Goods** |  |  |
| 2.1 | Coordination with the design and build contractor and other Government contractors for the installation of the Goods. |  |  |
| 2.2 | Inclusion of all installation work which shall be carried out by suitably qualified persons including without limitation registered electrical worker(s) with valid registration under relevant legislation. |  |  |
| 2.3 | The equipment and installation shall be in compliance with the relevant requirements of the latest edition of “Electrical Products (Safety) Regulation” under Electricity Ordinance, Chapter 406 and “Code of Practice for the Electricity (Wiring) Regulations” enforced by Electrical and Mechanical Services Department (EMSD). |  |  |
| 2.4 | The equipment shall be fitted with suitable power supply cables in compliance with BS EN 50525‐1:2011 or an equivalent international standard. A suitably fused plugs or terminal connection unit in compliance with the relevant requirements of the latest edition of “Code of Practice for the Electricity (Wiring) Regulations”, enforced by EMSD shall be provided as well. |  |  |
| 2.5 | The equipment shall be effectively bonded to earth unless it is double insulated. |  |  |
| 2.6 | The equipment shall be designed for operation on local electricity supply of 220 volt + 5%, 50Hz + 2%, single phase, A.C. |  |  |
| 2.7 | The equipment shall be equipped with an over-current protective cut out device. |  |  |
| 2.8 | The electrical and electronic equipment shall be designed for operation operating in the following environmental conditions: |  |  |
|  | 1. Temperature: 0 degree Celsius to 40 degree Celsius;
 |  |  |
|  | 1. Relative humidity 10% to 95%.
 |  |  |
| **C** | **Training** |  |  |
| 1 | The supplier shall provide on-site free of charge comprehensive equipment operation, maintenance and overhaul training course for the user and the CMH maintenance staff. |  |  |
| 2 | The schedule of local operational training shall be closely matched with the equipment installation and commissioning. The final schedule shall be agreed by the CMH Operator; |  |  |
| 3 | The training shall be conducted by the specialist(s) or qualified person fully conversant with the operation. |  |  |
| 4 | The instructor(s) shall be fully conversant in Cantonese and English. All training and training materials provided shall be in Traditional Chinese or English. |  |  |
| 5 | The course of training shall include all materials such as notes, charts for the participants. These materials shall be available in hardcopy at the time of training to each attendee; |  |  |
| 6 | The CMH is allowed to take video and audio recordings during the delivery of the training course for future in-house training. |  |  |
| 7 | The CMH is allowed to copy any training documentation and materials for in-house training purpose. |  |  |
| **D** | **Documentation** |  |  |
| 1 | Two original hardcopies of the manufacturer’s operation manual and two original hardcopies of maintenance and service manual for each item shall be submitted with the delivery of the Goods. The supplied documentation shall be in Traditional Chinese or English. |  |  |
| 2 | The CMH is allowed to make copies of the manuals for training or operational purposes. |  |  |
| **E** | **Acceptance Test** |  |  |
| 1 | Once completion of delivery or installation on site of the equipment by the successful tenderer, the equipment shall be tested for acceptance at site carried out by the CMH representative(s) and/or by the successful tenderer and witness by a representative from concerned parties. The acceptance tests shall include checking on materials used, safety device or feature, structure strength, functional tests and performance. |  |  |
| 2 | The successful tenderer shall provide all testing instruments to conduct site acceptance tests. All testing instruments to be used for the acceptance tests shall be calibrated and copies of calibration certificates or other supporting documents shall be forwarded to the CMH and concerned parties for records. |  |  |
| 3 | Full functional tests for demonstration of compliance of the equipment or system with operational and reliability requirements shall be provided by the successful tenderer to the satisfaction of the CMH representative. In the event that the equipment fails to conform to the requirements specified in section A of Part 3, the successful tenderer is required to carry out appropriate remedial measures and/or any rectification works, including replacement of the entire equipment, where deemed necessary. |  |  |
| **F** | **Desirable Features** |  |  |
|  | NIL |  |  |
| **G** | **Indicative Warranty Service** |  |  |
| 1 | The successful tenderer shall provide at least one-year warranty period for the section A of this part mentioned equipment supplied, or any part or portion thereof, starting from the acceptance of the Goods. During warranty period, all services which include replacement of faulty parts, breakdown services by qualified maintenance personnel who received training from manufacturer, shall be provided free of charge to the CMH. The successful tenderer shall provide relevant documents to prove that the maintenance personnel processes adequate skill for repair or replacement. |  |  |
| 2 | The successful tenderer shall replace all faulty parts with no additional costs to the CMH Operator, the replacement unit/component, if acceptable to the CMH Operator, shall be treated as a part of the Goods. |  |  |
| 3 | Any replacement parts provided by the successful tenderer shall become the property of the Government / the CMH Operator. Parts removed shall become the property of the successful tenderer provided always that the Government / the CMH Operator shall be entitled to retain any part which is to be replaced if the successful tenderer is unable to erase all the information stored in any form in such parts of the Goods. The successful tenderer shall, before removal of any such part, certify to the Government / the CMH Operator in writing that all information stored in such part has been completely erased and shall be liable for any loss or damage caused by the possession or use of any information remaining in any part of the faulty part(s) so removed. |  |  |
| 4 | The warranty period shall only commence after satisfactory completion of the acceptance and functional testing. |  |  |
| 5 | Any defects found in the section A of this part mentioned equipment within the warranty period shall be fixed free of charge to the CMH. |  |  |
| 6 | Repairs / replacement shall be provided within 48 hours after notification of fault by telephone or fax upon request. The successful tenderer should provide fault reporting hotline or fax number during the warranty period. |  |  |
| **H** | **Indicative Maintenance Service** |  |  |
| 1 | All services which include replacement of faulty parts, breakdown services shall be provided by qualified maintenance personnel who received training from the manufacturer. The successful tenderer shall provide relevant documents to prove that the maintenance personnel processes adequate skill for repair or replacement. |  |  |
| 2 | Upon notification of a defect in the operation of the equipment, or part thereof, the successful tenderer shall attend to the fault within 48 hours. This service shall include all necessary repairs and replacement of parts to restore the equipment to its normal operation conditions within 3 working days once the fault is attended. |  |  |
| 3 | The normal working hours shall be defined as 0900 – 1800 hours Monday to Friday, excluding public holidays. The successful tenderer shall accept this as the criterion for providing maintenance service. |  |  |
| 4 | The following shall be provided free of overtime charges to the CMH by the successful tenderer: |  |  |
|  | 1. All maintenance works carried out during normal working hours as defined above.
 |  |  |
|  | 1. All repair works carried out even beyond normal working hours as defined above shall also be free of overtime charges, if the Supplier is notified of the equipment fault during the defined period of normal working hours.
 |  |  |
| 5  | All reports of maintenance service shall be documented and provided to the CMH representative as appropriate and filed with the equipment history file. Service records for services conducted during the period, irrespective the service/part being chargeable or not shall be provided. Photocopies of service reports are acceptable provided that they are legible and contain the following information: |  |  |
|  | 1. Nature of service (Scheduled or Corrective maintenance);
 |  |  |
|  | 1. Equipment location;
 |  |  |
|  | 1. Arrival time on site;
 |  |  |
|  | 1. Fault reported (date & time);
 |  |  |
|  | 1. Fault corrected (date & time);
 |  |  |
|  | 1. Response time;
 |  |  |
|  | 1. Down time;
 |  |  |
|  | 1. Reinstatement (date & time);
 |  |  |
|  | 1. Action taken;
 |  |  |
|  | 1. Spare parts used;
 |  |  |
|  | 1. Current price of spare parts used;
 |  |  |
|  | 1. Consumable items used;
 |  |  |
|  | 1. Current price of consumable items used.
 |  |  |

**Part 4 – Implementation Plan**

*(Note to Suppliers: Please provide the estimated time periods required for the completion of the following tasks, counting from the date of issue an order (“Order Date”). Both the start and end date of the Order Date is referenced as* ***Month 0****. The Goods should be* ***Ready for Use in the last month of the Implementation Plan.***

|  |  |
| --- | --- |
| **Tasks of the Implementation Plan** | **Estimated Time Period for** **Performing the Tasks**(The Order Date is set as Month **0**) |
| **Start** (Month) | **End** (Month) |
|  | Order Date *(i.e. the date of order placed by the Government, if any)*  | **0** | **0** |
|  | Submission of Site Preparation Information (if applicable) |  |  |
|  | Delivery of the Goods  |  |  |
|  | Installation of the Goods |  |  |
|  | Implementation Services (*Please refer to* ***section B in Part 3*** *for details*) |  |  |
|  | Training (*Please refer to* ***section C in Part 3*** *for Details*) |  |  |
|  | Delivery of Documentation (*Please refer to* ***section D in Part 3*** *for details*) |  |  |
|  | Acceptance Tests |  |  |
|  | Any other tasks considered necessary by your company *(Please provide details, use separate sheet if space is insufficient)*: |  |  |
|  | Goods Ready for Use *(i.e. the date when the Goods has passed all acceptance tests and accepted by the Government)*  | **0** |  |

**Part 5 – Indicative Price Information**

(*Note* *to Suppliers: The price information provided in this Part 5 is for Government’s consideration only and shall not constitute any commitment on the part of the Government or your company. Nevertheless, please provide the information as accurate as possible.*)

**(a) Indicative Price Information for the Goods**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item** | **Description** | **Estimated****Quantity** | **One-time Unit Price(HK$)** | **Estimated Goods Price for the Item specified opposite****(HK$)** |
|  |  | **(a)** | **(b)** | **(c) = (a) x (b)** |
| 1 | Supply, delivery, installation, testing and commissioning of the Goods and related accessories, as more particularly specified in **section A in Part 3**, including the provision of a minimum 12-month warranty period. | Breakdown as Item 1.1-1.7 | Breakdown as Item 1.1-1.7 | Breakdown as Item 1.1-1.7 |
| 1.1 | All-in-one Cleansing Robot | 2 sets |  |  |
| 1.2 | Scrubbing Robot | 2 sets |  |  |
| 1.3 | Mopping and Scrubbing Robot | 4 sets |  |  |
| 1.4 | Sweeping Robot | 2 sets |  |  |
| 1.5 | Infection Control Robot | 15 sets |  |  |
| 1.6 | Delivery Robot (Type 1) | 11 sets |  |  |
| 1.7 | Delivery Robot (Type 2) | 4 sets |  |  |
| 2 | Provision of implementation services as detailed in **section B in Part 3** | 1 lot |  |  |
| 3 | Provision of training services as detailed in **section C in Part 3**  | 2 courses |  |  |
| 4 | Documentation as detailed in **section D in Part 3** | 1 lot |  |  |
| 5 | Other (please specify) | (please specify) |  |  |
| **Total One-time Charge**(i.e. Sum of Estimated Goods Prices of Item 1- 5) |  |

**Part 6 – Indicative Maintenance Charges and Spare Parts Price**

(Notes to Suppliers for completion of Part 6)

1. *Pursuant to item 1 of Part 5(a) above, the proposed Goods shall have a warranty period of not less than 12 months. The indicative warranty service requirements are stipulated in* ***section G in Part 3****, which are subject to changes at the sole discretion of the Government.*
2. *Indicative maintenance service requirements after the free warranty period are stipulated in* ***section H in Part 3****, which are subject to changes at the sole discretion of the Government*
3. *It is expected that the maintenance services shall be comprehensive, all inclusive and shall cover all parts, components, labour and software support services. If your company considers that any components of the Goods may not be covered by the maintenance services (****saving that the labour shall always be covered by the maintenance services****) and may need to be charged separately, please indicate replacement costs of these components and their replacement frequency.*
4. *The annual maintenance charge within the serviceable life of the proposed Goods* ***is adjustable in accordance with the consumer price index (B) upon the expiry of each 12-months period of maintenance service****.*
5. **Indicative Maintenance Prices of the Proposed Goods**

| **Item** | **Description** | **Estimated****Quantity** | **Annual Maintenance Charge(for the first 12-month period of the Maintenance Period)** |
| --- | --- | --- | --- |
| **Unit Charge (HK$)** | **Total Charge (HK$)** |
|  |  | **(a)** | **(b)** | **(c) = (a) x (b)** |
| 1.1 | All-in-one Cleansing Robot | 2 sets |  |  |
| 1.2 | Scrubbing Robot | 2 sets |  |  |
| 1.3 | Mopping and Scrubbing Robot | 4 sets |  |  |
| 1.4 | Sweeping Robot | 2 sets |  |  |
| 1.5 | Infection Control Robot | 15 sets |  |  |
| 1.6 | Delivery Robot (Type 1) | 11 sets |  |  |
| 1.7 | Delivery Robot (Type 2) | 4 sets |  |  |

1. **Indicative Replacement Prices of Equipment’s Components not covered by the Maintenance Services (if applicable) (***Leave the following table blank if not applicable***)**

(*Note to Suppliers:* ***The labor costs for replacement of these components shall always be covered by the maintenance charges for the provision of the maintenance services*** *regardless whether the prices for the supply of these components are covered by the maintenance services or not.)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Name of Items | Indicative Replacement Price (HK$/no.) | Indicative Replacement Frequency (*e.g. once every 3 years*) |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |

1. **Indicative overtime charges for provision of maintenance services after office hours (if applicable)**

(*Note to Suppliers: (1) Office hours mean 0900 to 1800 hours from Monday to Friday excluding public holidays. (2) Minimum service hour(s) per call shall be counted upon arrival of the site.*)

|  |  |  |
| --- | --- | --- |
| (a) | Rates of overtime charges for maintenance service outside the office hours | HK$ per hour |
| (b) | Minimum service hour(s) per call |  service hour(s) per call |

1. **Indicative Prices for Replacement of Other Spare Parts (if applicable)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Name of Items | Price (HK$/no.) | Indicative Replacement Frequency (*e.g. once every 3 years*) | Expected time for delivery from date of order(weeks) |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |
| 5 |  |  |  |  |
| 6 |  |  |  |  |

1. **Indicative Price for Annual Support Services of Software (if applicable)**

(*Note to Suppliers:* Please provide below annual charge for support services of the Goods’s software during the serviceable life of the Goods for the CMH Operator’s consideration. *The support services should include but not limited to:*

1. *provision and renewal of software toolkits, access codes, passwords, software keys and hardware keys, etc. necessary for all kinds of adjustments, in-depth diagnosis and trouble shooting of the Goods; and*
2. *version upgrade of the software.)*

|  |  |
| --- | --- |
|  | (a) Free of charge during serviceable life  |
|  |  |
|  | (b) Yearly cost at $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Part 7 – Supplementary Information**

1. Number of proposed Goods Already Installed (leave blank if information is not available)

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Goods** | **In Hong Kong** | **Globally****(Excluding those installed in Hong Kong)** |
| 1.1 | All-in-one Cleansing Robot | set(s) | set(s) |
| 1.2 | Scrubbing Robot | set(s) | set(s) |
| 1.3 | Mopping and Scrubbing Robot | set(s) | set(s) |
| 1.4 | Sweeping Robot | set(s) | set(s) |
| 1.5 | Infection Control Robot | set(s) | set(s) |
| 1.6 | Delivery Robot (Type 1) | set(s) | set(s) |
| 1.7 | Delivery Robot (Type 2) | set(s) | set(s) |

1. Year of Launch of the Proposed Goods (leave blank if information is not available)

|  |  |  |
| --- | --- | --- |
| **Item** | **Goods** | **First launched in the market in Year** |
| 1.1 | All-in-one Cleansing Robot |  |
| 1.2 | Scrubbing Robot |  |
| 1.3 | Mopping and Scrubbing Robot |  |
| 1.4 | Sweeping Robot |  |
| 1.5 | Infection Control Robot |  |
| 1.6 | Delivery Robot (Type 1) |  |
| 1.7 | Delivery Robot (Type 2) |  |

1. Pre-Installation Requirements of the Proposed Goods (if any)

*(Pre-installation requirements may include any preparation work and provisions that are necessary for the installation of the Goods, such as the requirements of ceiling mount support, power supply requirements, etc.)*

**Part 8 – Questionnaire**

|  |  |
| --- | --- |
| **Information Required** | **To be completed by the supplier** |
| 1. What is the payment schedule?
 |  |
| 1. Please state if any equipment does not have local after-sale service, if yes, please state how long would delivery take for replacement parts.
 |  |
| 1. Please provide job reference(s) for the Goods.
 |  |

**END**