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# Al Stock Take Robot

" Autonomous technologies, AI, and internet of things"

#### **Hong Kong**

Hong Kong Communications Co., Ltd.

Address: 14/F., Block B, Vita Tower, 29 Wong Chuk Hang Road, Hong Kong Tel:+852 2528 3936 Fax:+852 2865 6016

Email: contact\_hkcgroup@hkc.net Website: http://www.hkc.com.hk

HKC Technology Limited Address: 14/F., Block B, Vita Tower, 29 Wong Chuk Hang Road, Hong Kong Tel:+852 2255 9488 Fax:+852 2255 9490

Website: http://www.hkctech.com.hk

#### China

HKC Technology (Shanghai) Co., Ltd.

Address: Room 1012, Heyuan, No. 2993 - Gonghexin Road,

Jinan District Shanghai, PRC Tel: +86 21 6170 2233

Fax: +86 21 6170 2260 Customer Service Hotline: 400 670 2363

QQ Online Chat: 2223036659 / 1106745048 Website: http://sh-hkc.cn

HKC Technology (Guangdong) Co., Ltd. Address: 8th Floor, no.804, Talent Building, Songshan Lake,

Dongguan

Tel: 0769-88600995

HKC Technology (Shanghai) Co., Ltd.- Guangzhou Branch Address: 3rd Floor, no.11 Yi Heng Road, Industrial Zone 1, Jiangnan Village, Nancun Town, Panyu District, Guangzhou Tel: +86 20 3482 7729

Fax: +86 20 3496 6759

### **Singapore**

Singapore Communications Co Pte. Ltd. Address: 8 Jalan Kilang Timor #03-09 Kewalram House Singapore 159305 Tel: +65 6880 0800(General), +65 6880 0811(Customer Service) Fax: +65 6880 0899 Email: sales@singcomm.com.sg Website:http://www.singcomm.com.sg





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In traditional library environment, if you want to find a book in the library, you need to take the code number and go to the bookshelf on the floor where the collection is located, or ask a librarian for help. If the book is misplaced on the wrong shelf, the whole process is far more time consuming.

# **Entering a New Era of Smart Library 4.0**

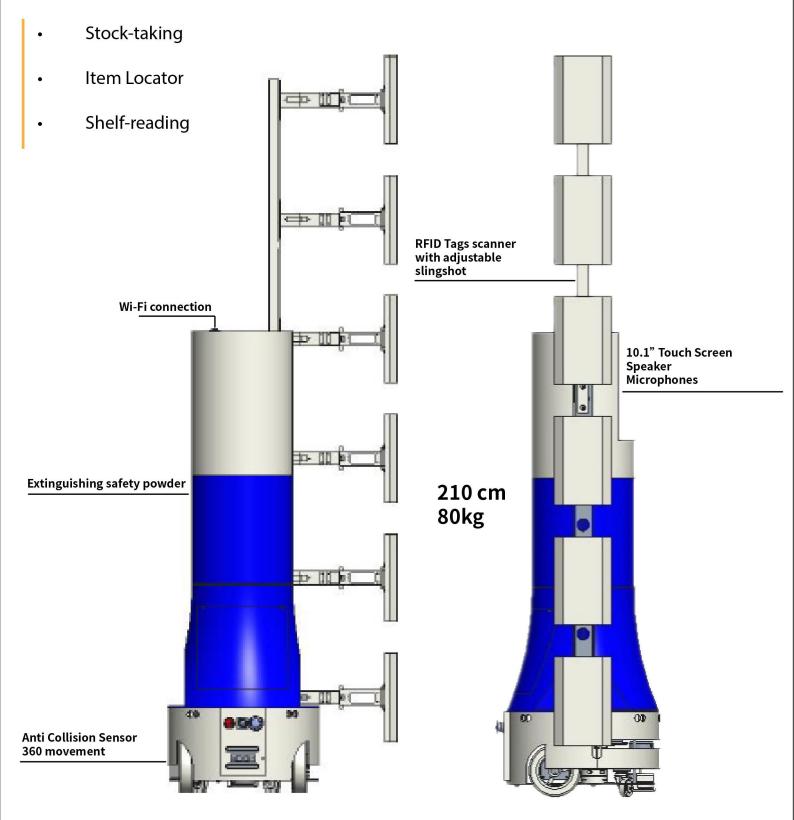
Launching the rapid development of Smart Library 4.0, HKC has devloped the artificial intelligence inventory robot "Jiajia". It has a preset autonavigation and charging system that automates the cumbersome book counting process. It automatically scans 35,000 books per hour, with an accuracy rate of 99%. The robotic automatic navigation (SLAM) technology not only helps in inventory inspection, but allows the robot to assist and guide the reader to find the location of the required books.



# Introduction

Stock take robot "Jiajia" is an autonomous robot used in Library. It supports autonomous mapping, localization (SLAM) and navigation. No human assistance is required. Autonomous recharging is supported. It can go back to charge station automatically.

Stock take robot shall scan library items on the shelves autonomously to perform the following key functions:



# **System Architecture**

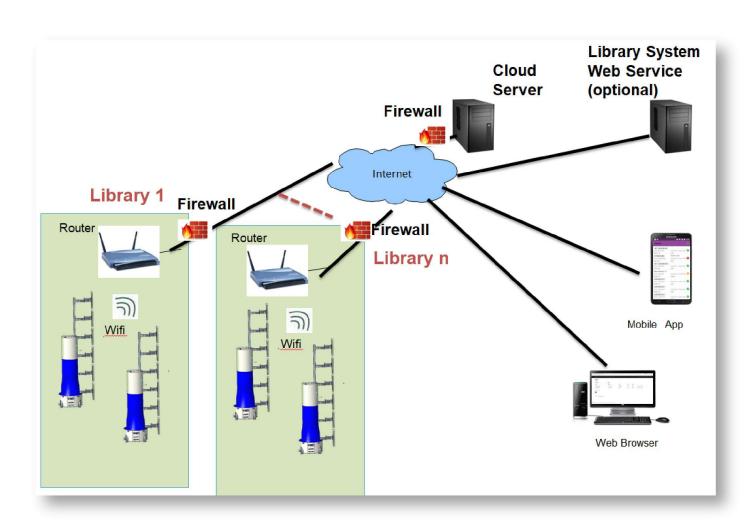
The Libra Robot System (LRS) consists of one or multiple robots operated in one or multiple sites with a Centralised Libra Robot Management System (LRMS) on cloud or on-premises.

Library Staff can use desktop computer or mobile phone to connect to the server via browser for creating new scheduled tasks for robot.

Robot shall execute the tasks according to scheduled time. When finished, it sends the scanned result to the LRMS via the router for analytics and report generation.

LRMS can optionally be integrated with LMS (Library Management System) for real time book status update and enquiry purposes.

Library Staff can check the results of the tasks on the web dashboard or robot tablet.



# **Features of LRMS System**

## **Item Locator**

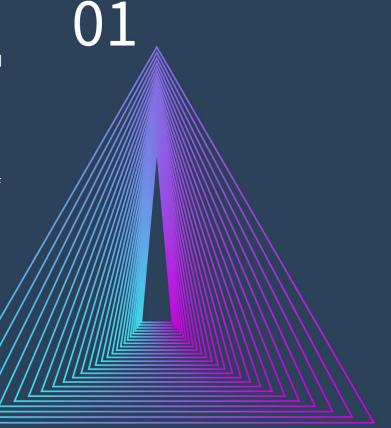
LRMS maintains a database of scanned library items and their shelf locations up to tier and bay level. It allows library staff to search and locate the last-scanned shelf location (at tier and bay level) of the item on a library layout map or via a search interface

It can optionally update the scanned items data and their shelf locations to Library Management System (LMS) if necessary

Provide solution for library staff to easily locate the exception items on shelves and update the location of the exception items after the items have been put back to the correct shelves.

#### Stock Take

Supports stock-take function. Library staff can select the location or zone for stock-take with scheduled time. It can provide reports of detected items, misplaced items and suspected missing items



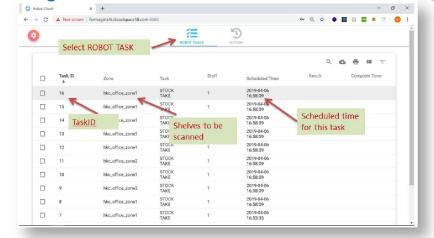
Shelf-reading

The LRMS supports the shelf reading function. The LRMS shall update item location in the database for any items scanned in shelves. The location of these items can also be optionally updated to LMS in real time if necessary.

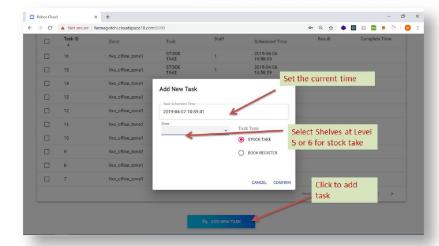
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# **Stocktake Web User Interface**

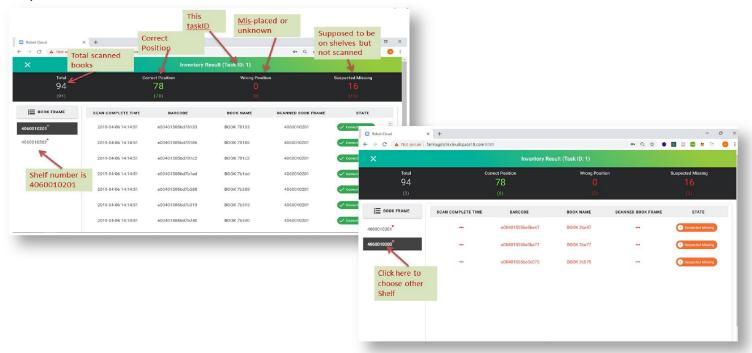
#### Log in Server



#### Add New Task to scan shelves

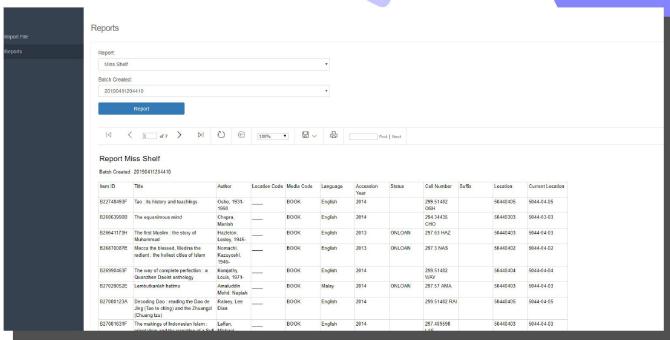


#### **Inspect Results**



# **Stocktake Report**





Misplaced report

# **Robot Tablet User Interface**











# Supermarket



