Space factory Function Map:

Machining Area 1:

Top layer:

(1) Small size assembly line-- mainly for commodity in the space station.

(2) Medium and large assembly line-- for several types of assistant robots for construction , artificial equipment, etc.

(After making the final product, it will be exported through no.2 logistics channel)

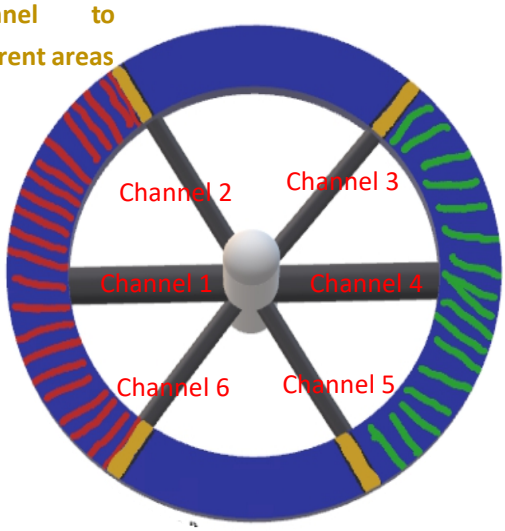
Middle layer, lower layer:

(1) material processing.--Metal, composite, new material, and assembly parts grinding cutting, shaping, improving

(2) Precision parts manufacturing lines--including smart chips, etc.

(The finished material can be transported to the assembly area or top layer

Channel to different areas



Assembly Area：

Top layer: assembly of super large size products (large automation equipment), which requires cooperation between human and machine.

Middle layer: large, medium large size product assembly

Lower layer: Medium large size product assembly / special type product assembly (e.g. must be manually assembled)

Separate product test sites are provided on each floor (common assembly line products are not required tested)

Finished goods export from channel 1

Smelting & Manufacturing Area:

(Area of Raw material smelting & preliminary casting)

Top layer: special materials, such as Aigis, nanomaterials, non-metallic composite materials and other processed materials can be selected from both ends of the output

Middle layer, lower layer: different kinds of metals, alloys and minerals are processed and cast.

Machining Area 2:

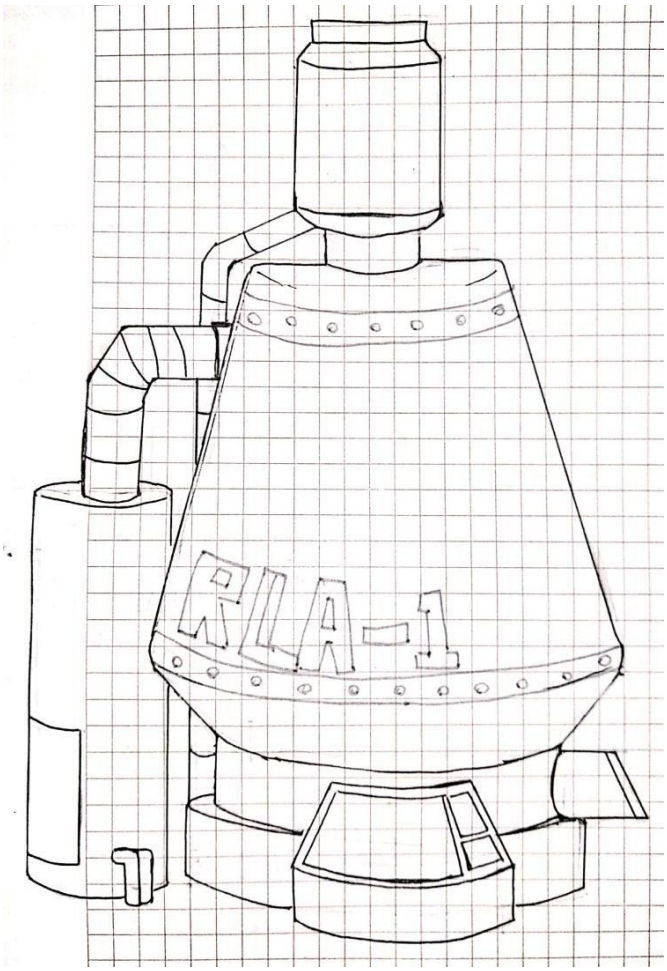
Top layer: large and super large size product parts manufacturing assembly line, preliminary assembly, assemble product frame, etc. **Finished products are exported from channel 6, and unfinished products are transported to the assembly area.**

Middle layer and lower layer: metal materials and other materials for processing, grinding, welding, etc., functions is similar to the middle layer and lower layer of processing area 1.However, the materials to be processed are generally larger components used for infrastructure, large automation equipment, transportation equipment, etc.**(products transport to top layer or Assembly Area)**

Area name	emergency preparedness	Staff arrangements (excluding AI / devices)
Smelting & Manufacturing Area	**Monitoring room and logistics department are located in the center of the area.** **Monitoring:** Gravity field control status, each device has a test program, every data is connected to the monitoring room. (Pressure, temperature, substance concentration and type, reaction/smelting rate, load, power and various safety indicators in the testing equipment), **Send people/machines to check the abnormal indicators of individual equipment. In serious case of emergency, stop operation or the whole area directly according to the degree of seriousness**	**Central Monitoring Room:** 10 people (in three shifts) **Logistic department:** 20 people (in three shifts) patrol the area in pairs every 2-3 hours
Machining Area 1 (Machining Area 2 :same)	**Monitoring room and logistics department are located in the center of the area.** **Monitoring:** Gravity field control status, each device has a test program, every data is connected to the monitoring room (Whether the material is sufficient, keeping assembly line in right order, output quantity, quality, production rate, power, etc.) **Send people/machines to check the abnormal indicators of individual equipment. In serious case of emergency, stop operation or the whole area directly according to the degree of seriousness**	**Central Monitoring Room:** 10 people (in three shifts) **Logistic department:** 20 people (in three shifts) patrol the area in pairs every 2-3 hours
Assembly Area	**Monitoring room and logistics department are located in the center of the area.** **Monitoring:** Gravity field control status, each device has a test program, every data is connected to the monitoring room (Whether the material is sufficient, keeping assembly line in right order, output quantity, quality, production rate, power, product random inspection etc.) **Send people/machines to check the abnormal indicators of individual equipment. In serious case of emergency, stop operation or the whole area directly**	**Central Monitoring Room:** 8 people (in three shifts) **Assembler and Logistics department (in three shifts) :** 50 people / upper layer 20 people / middle layer 20 people / lower layer

	according to the degree of seriousness	

（main）working equipment:



Smelting furnace

Function principle: wet metallurgy

it is a chemical method to extract the metal components from the ore, by using acid, alkali, salt water solution, and then use aqueous solution electrolysis or other methods to make the metal.(Baidubaike)

Automatic production: produces and adjust reaction conditions automatically

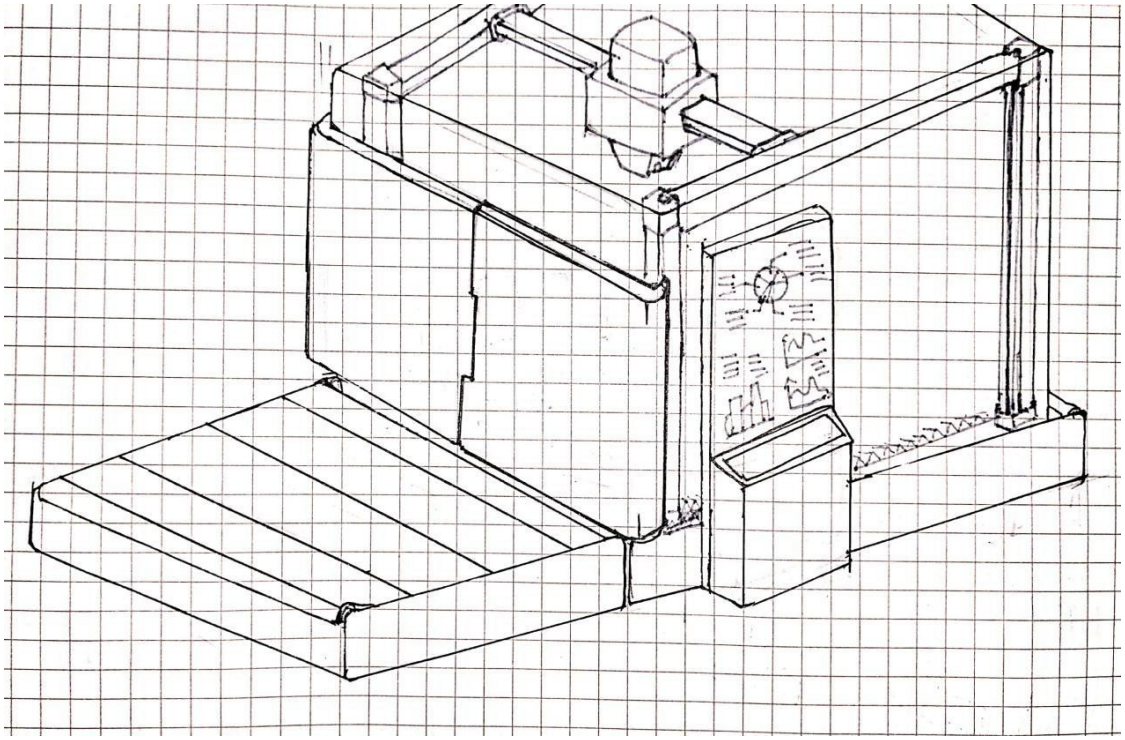
Maintenance / inspection:

Below the equipment is a display platform for operation status, chemical agent, reactant and product data. At the same time, the data is connected with the monitoring and control room of the center. In case of abnormalities, personnel / machine shall be sent for inspection

The logistics department has backup of important parts

Quantity: 30 sets (control the production rate to ensure at least 1 free set at any time)

Perspective drawing：



Laser cutting machine

Function principle: the laser emitted from the laser, through the optical path system, focused into a high power and high density laser beam. The laser beam hits the surface of the workpiece, bringing it to the melting or boiling point, while high-pressure gas coaxial with the beam blows away the melted or vaporized metal.(Baidubaike)

Automatic production: adjust the displacement and power of the cutter automatically.

Maintenance / inspection:

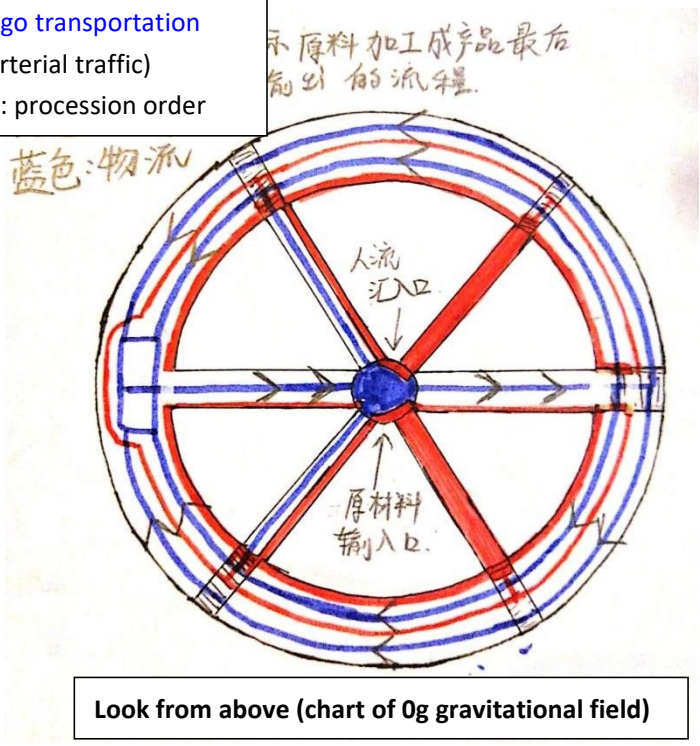
Beside the equipment, there is a display platform for operation status, parameters of cutting component, laser power, laser cutting error range statistics and other data. Meanwhile, the data is connected with the central monitoring and control room. In case of abnormal conditions, personnel / machine are sent for inspection, and the operation is stopped when necessary.

The logistics department has backup of important parts

Quantity: 40 sets (control the production rate to ensure at least 1 free set at any time)

Space factory flow chart：

Red: personnel transportation
Blue: cargo transportation
(all are arterial traffic)
>(arrow): procession order



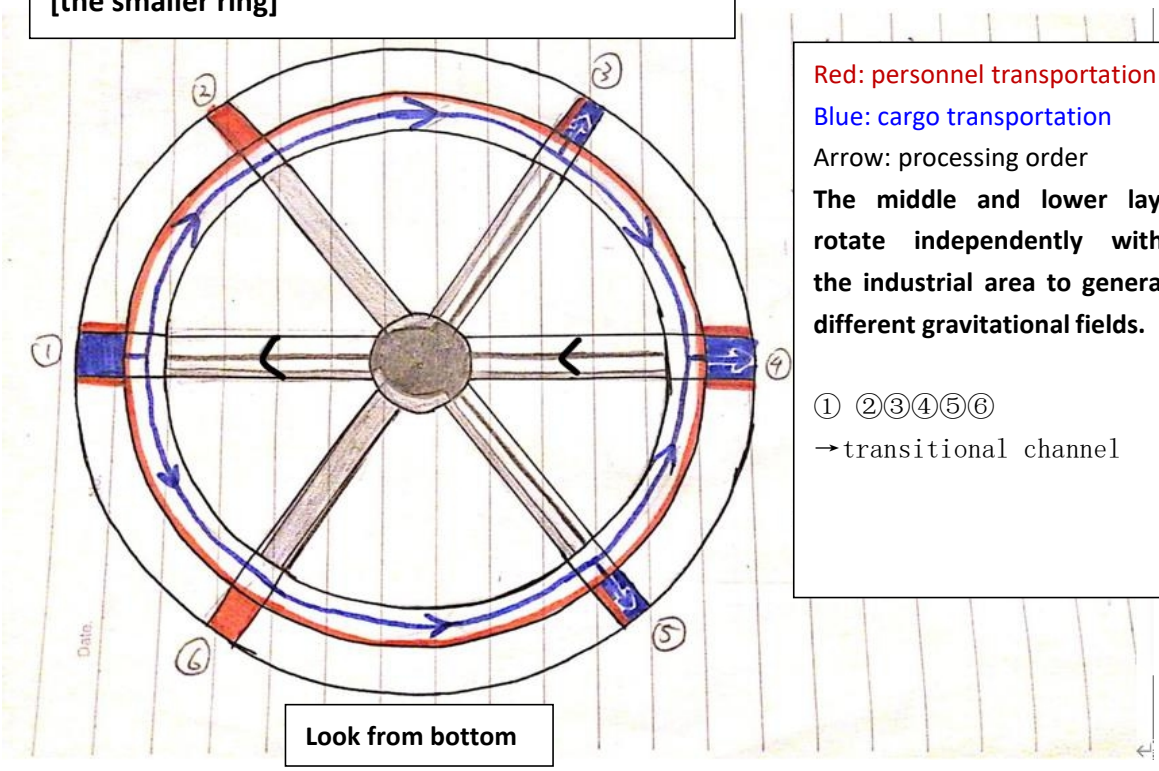
Look from above (chart of 0g gravitational field)

Cargo transportation:
Raw material input from the center
→Smelting & Manufacturing Area
→Machining area
→ Assembly area (if there are finished products, output form Channel 2 or 6)
→output products from channel 1

Personnel transportation:
Red part :people free to move

Emergency & Maintenance Plan:
Each area of the factory has a monitoring room, which takes control of camera surveillance and all the equipment operation.
Each area is equipped with logistics department, including backup of vital parts. Send a repairman (person / machine) to fix any abnormal condition in the process. If there is a broad range of error, the work of the entire area will be terminated immediately. Whether choose to close Other areas depends on the severity of the situation.

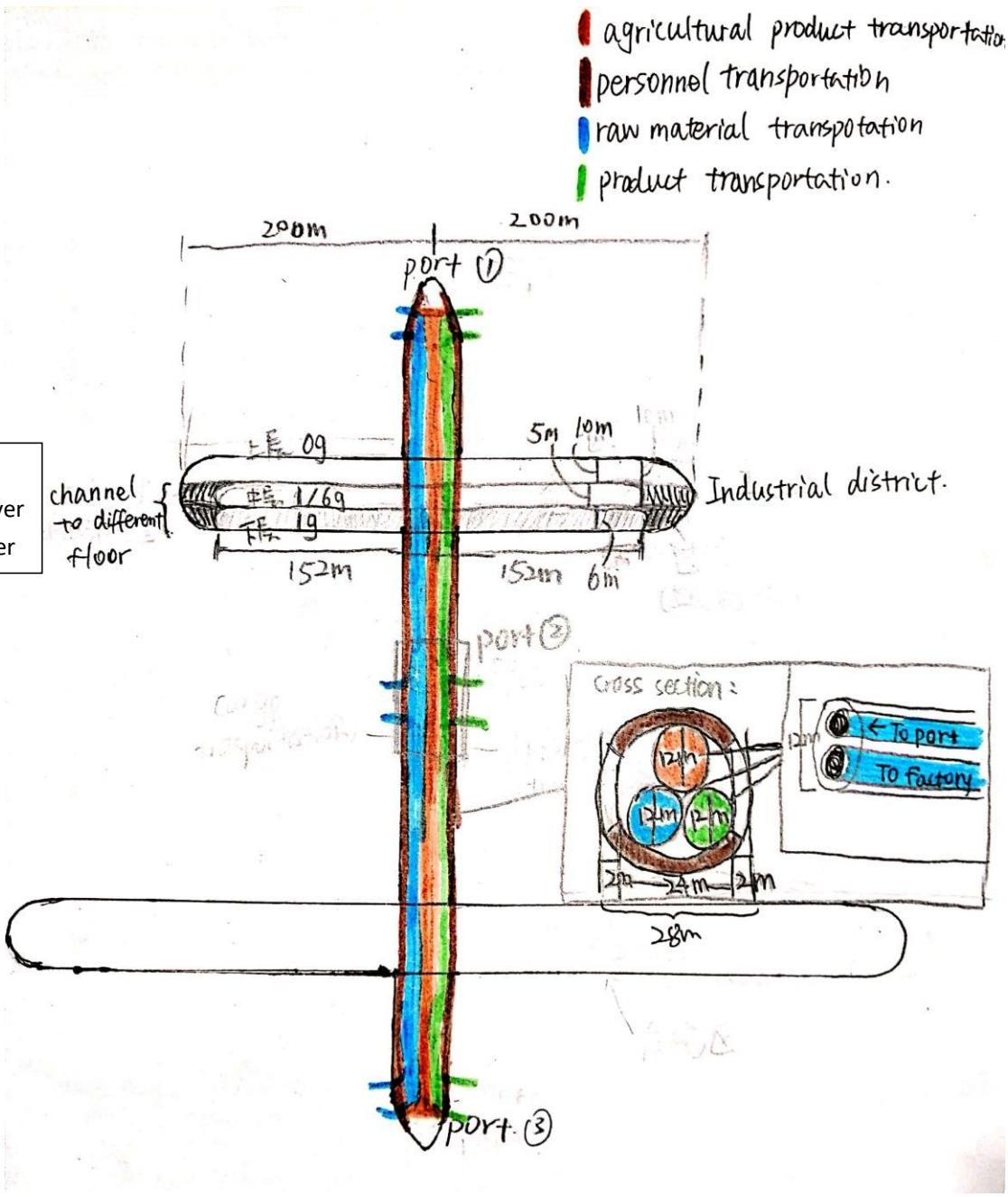
diagram of middle layer (1/6g) and lower layer (1g)
[the smaller ring]



Look from bottom

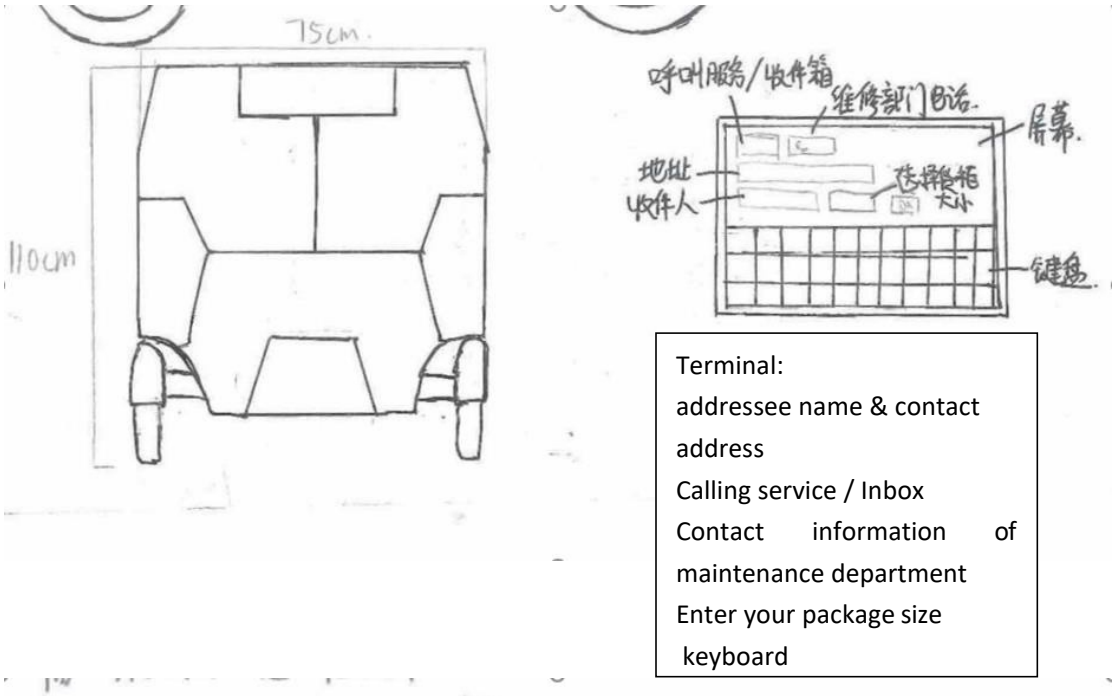
Red: personnel transportation
Blue: cargo transportation
Arrow: processing order
The middle and lower layer rotate independently within the industrial area to generate different gravitational fields.

① ②③④⑤⑥
→transitional channel

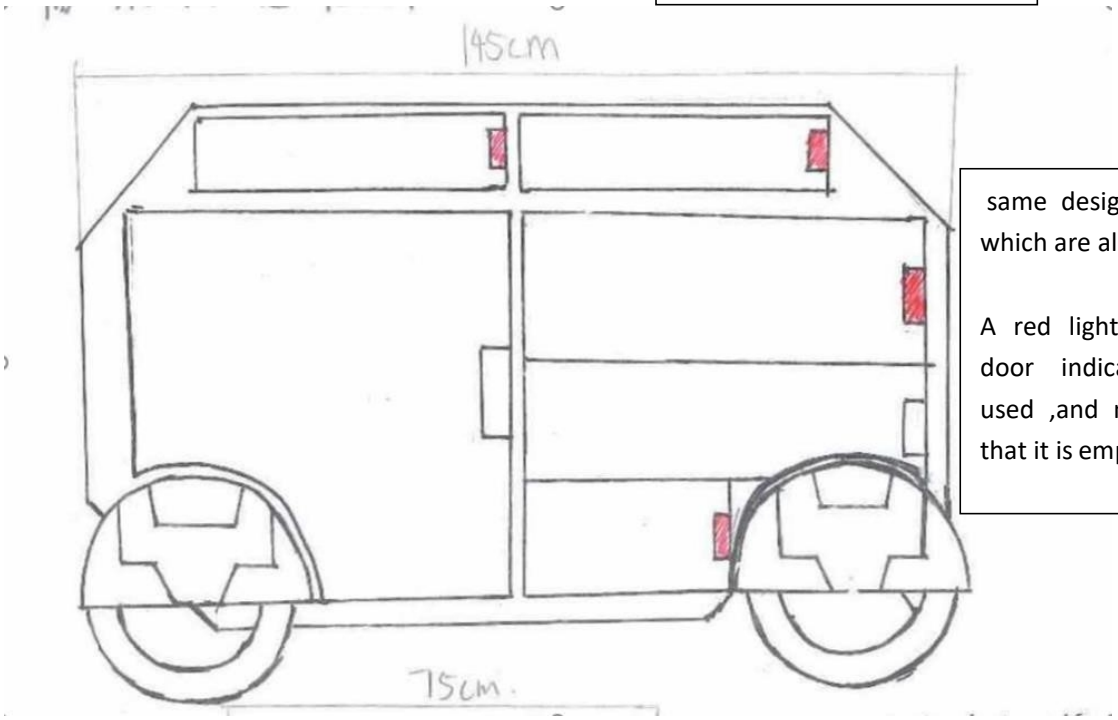


Top layer
Middle layer
Lower layer

（主要）流程所用设备：



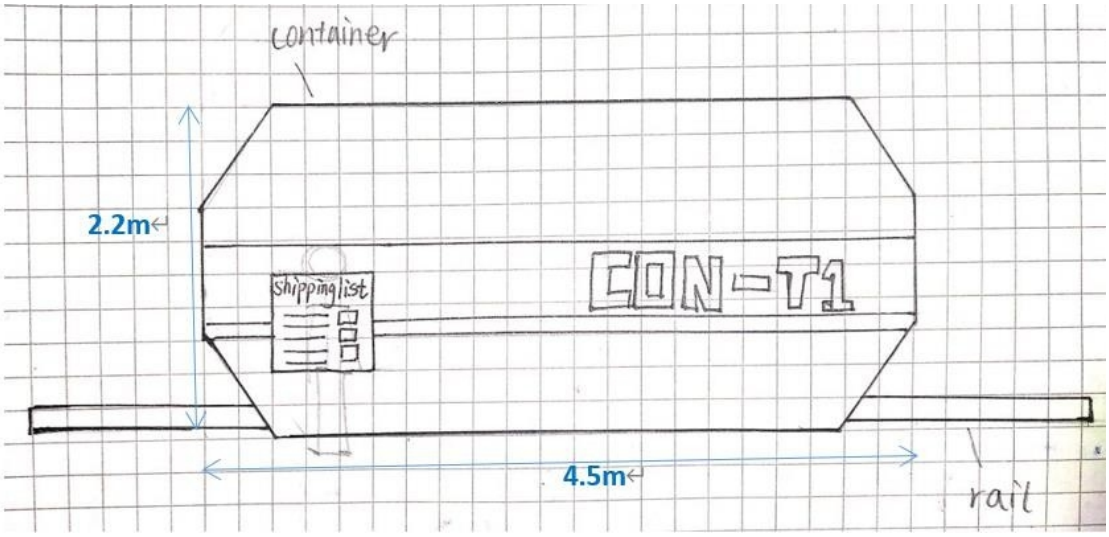
Terminal:
addressee name & contact address
Calling service / Inbox
Contact information of maintenance department
Enter your package size
keyboard

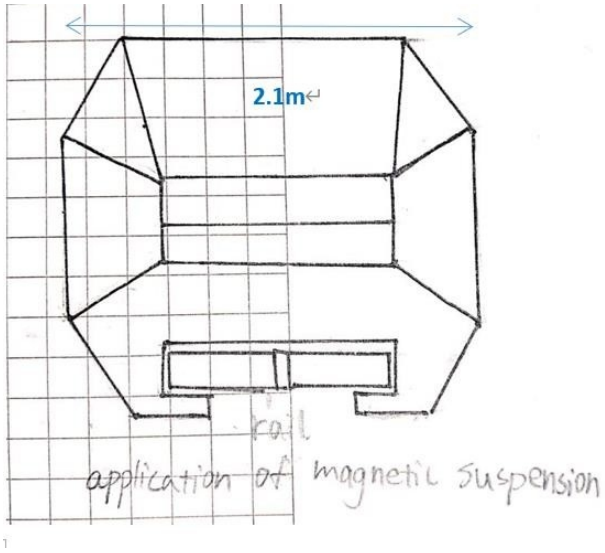


same design on both sides, which are all delivery lockers.

A red light on the locker's door indicates that it is used ,and no light indicates that it is empty

Transport robot
Function principle:
Automatic navigation system, automatic avoidance system (based on ultrasonic sensors)(Baidubaike) **Applied to** residential areas(mainly), agriculture area, exercise & entertainment area
Express center: responsible for controlling all transport robots (locating, two mode: automatic operation / remote control).
In addition to the calling service, it also involves transporting usual products (made by space factories).
Emergency &Maintenance / inspection: report abnormal condition, express center will call it back automatically or send staff / machine to take back.
Daily common inspection, in-depth inspection every three months, set logistics & maintenance





Container

Function principle:

Magnetic levitation, running along the track, monitored by remote control center (speed, load, route planning and other parameters) carry factory products to port, residential area and so on / carry raw materials to factory.

The container automatically generates the shipping list (brief product information, quantity and model number, etc., easy to check)

Emergency & Maintenance / inspection:

Remote control center monitoring, equipment directly deorbit when there is emergency. send staff / machine to check, hand over cargo.

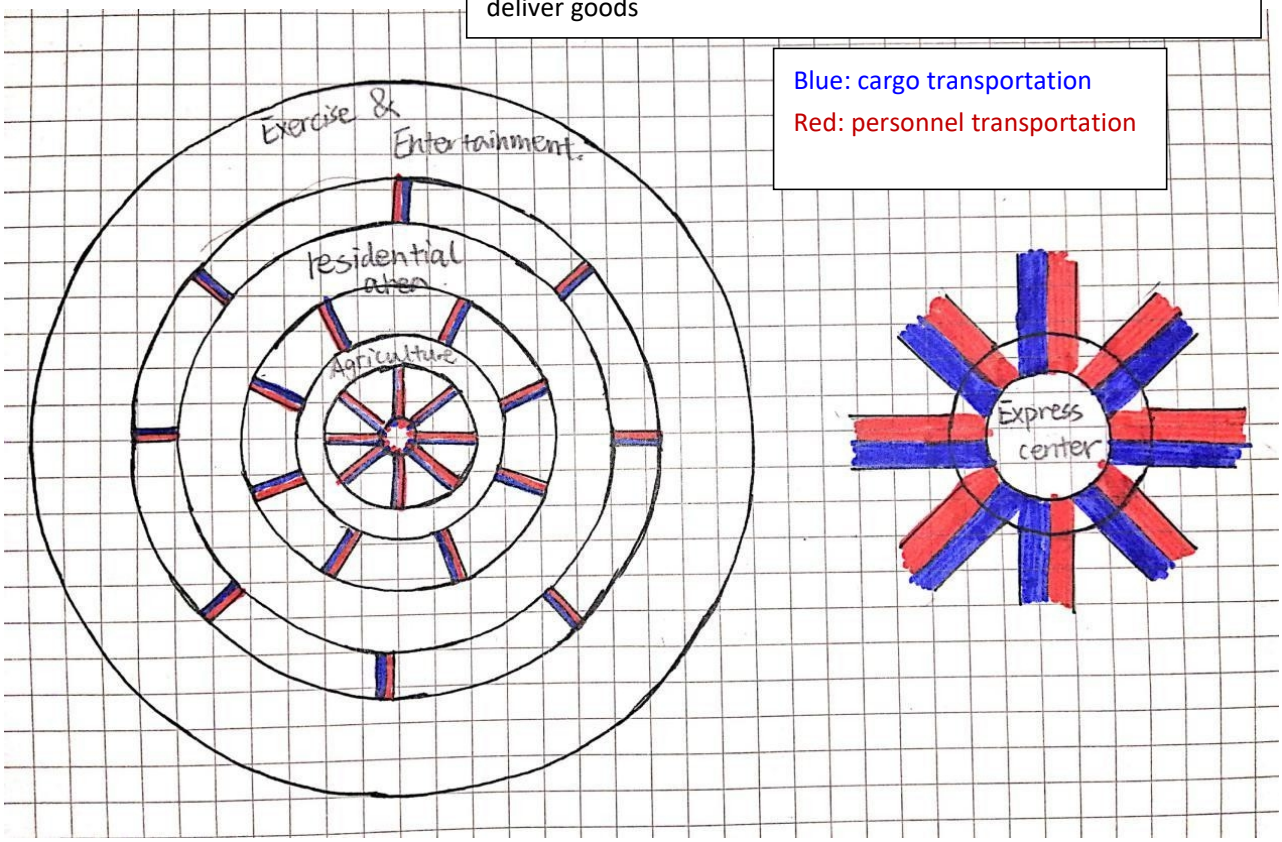
Count to number of containers, do inspection every day, in-depth inspection, do maintenance and replacement every half year.

Each large station has a logistics department,(backup 1set in case)

Quantity: 120 sets (ensure 1 set free at any moment)

Residential area flow chart:

All types of transport robots use the cargo transportation to deliver goods



Parameters of the Space factory:

Area name	layers	volume/m^3	Surface area/m^2 （floor）	gravitational field/g
Smelting & Manufacturing Area	Top	209439.5	20943.97	0
	middle	42882.8	7147.13	1/6
	lower	33426.5	6685.3	1
Total volume：285748.8m^3 total surface area：34776.4m^2				
Machining Area 1	Top	104719.8	10471.98	0
	middle	21441.4	3573.56	1/6
	lower	16713.3	3342.65	1
Total V：142874.4m^3 total surface area：17388.2m^2				
Machining Area 2	Top	104719.8	10471.98	0
	middle	21441.4	3573.56	1/6
	lower	16713.3	3342.65	1
Total V：142874.4m^3 total surface area：17388.2m^2				
Assembly Area	Top	209439.5	20943.97	0
	middle	42882.8	7147.13	1/6
	lower	33426.5	6685.3	1
Total V：285748.8m^3 total surface area：34776.4m^2				