ITRI

MCS Communication Message Spec

V1.2 draft

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內容

修訂追蹤			
版本	狀態	修改紀錄	
1.0	draft	第一版草案	Johnson
1.1	Modify	1. 修改車輛名稱 2. 新增車輛位置 3. 新增車輛充電狀態 4. 新增頂升平台狀態	Johnson

1 通訊概要

1 RabbitMQ

使用 rabbitmq, 採用 work queue 的方式, 請參考 https://www.rabbitmq.com/tutorials/tutorial-two-python.html

發送命令 queue name: "work_queue_to_MCS"

接收狀態 queue name: "work_queue_to_MES"

server IP: 依現場環境

版本：RabbitMQ 3.8.11, Erlang 23.2.3

2 資料格式

2 JSON 格式

消息傳遞之間採用 JSON 格式。

3 封包架構

內文開頭由 spec 與版本號(version)描述所參照的版本，以及文件標頭描述該封包的資訊欄位

可參考以下內文描述

1. spec
2. version
3. head
4. data

```
{
  "spec":"MCS Communication Message Spec",
  "version":" 1.0",
  "head":{
     "date":"2020-01-01 23:59:59.999",
     "uuid":"b6b11e0c-1764-11eb-adc1-0242ac120002",
     "priority":2,
     "agent":"MES"
  },
  "data":{
        "command": "transfer",
        "params": {
        "operator": "someone",
        "fromPort": "v1",
        "toPort": "v3",
        "carrierID": "CARRIER1",
        "carrierType": "MAGAZINE"
        }
}
```

3 Head 表頭資訊

(1) date : YYYY-MM-DDTHH:MM:SS,fffffffff

(2) uuid : uuid

(3) priority : 1-3,

(4) agent: “MES”,

example:

```
"head":{
   "date":"2020-01-01 23:59:59.999",
   "uuid":"b6b11e0c-1764-11eb-adc1-0242ac120002",
   "priority":2,
   "agent":"MES"
}
```

4 Data 資料內容

4.1 命令

4.1.1 Transfer

AGV move to A, load carrier, and move to B, unload carrier.

a. command: “transfer”

b. params: operator, fromPort, toPort, carrierID, carrierType

   i. operator: user id of current user

   ii. fromPort: port of from location.

   iii. toPort: port of to location.

   iv. carrierID: magazine ID. This is non-zero string like CARRIER1.

   v. carrierType: MAGAZINE

```
{
 "data": {
  "command": "transfer",
  "params": {
   "operator": "someone",
   "fromPort": "v5",
   "toPort": "v12",
   "carrierID": "CARRIER1",
   "carrierType": "MAGAZINE"
  }
 }
}
```

4.1.2 Go charge

AGV go to charge.

a. command: “go_charge”

b. params: vehicleID, operator, destination

   i. vehicleID: I001MR

   ii. operator: user id of current user

   iii. destination: the location of charging station

```
{
 "data": {
  "command": "go_charge",
  "params": {
   "vehicleID": "I001MR",
   "operator": "someone",
   "destination": "v4"
  }
 }
}
```

4.1.3 Stop charge

AGV stop charge.

a. command: “stop_charge”

b. params: vehicleID, operator

   i. vehicleID: I001MR

   ii. operator: user id of current user

```
{
 "data": {
  "command": "stop_charge",
  "params": {
```

```
    "vehicleID": " I001MR ",
    "operator": "someone"
  }
}
```

4.1.4 Move

AGV move

a. command : “move”

b. params: mrName, operator, toPort

   i. mrName : I001MR

   ii. operator : user id of current user

   iii. toPort : port of to location.

```
{
   "data": {
      "command": "move",
     "params": {
           "mrName": " I001MR ",
           "operator": "someone",
           "toPort": "p1-1"
        }
      }
}
```

4.2 狀態回復

4.2.1 Vehicle deposit completed

AGV unload carrier completed at location B.

a. typename: “vehicle_deposit_completed”

b. params: vehicleID, carrierID, toPort

i. vehicleID: I001MR

ii. carrierID: magazine ID like CARRIER1

iii. toPort: location of to port.

```
{
   "data": {
    "typename": "vehicle_deposit_completed",
   "params": {
      "vehicleID": " I001MR ",
      "carrierID": "CARRIER1",
      "toPort": "v12"
      }
   }
}
```

4.2.2 Vehicle update vertex

Update the vertex of the AGV when it moves.

a. typename: “vehicle_update_vertex”

b. params: vehicleID, vertexName

i. vehicleID: I001MR

ii. vertexName: the location of AGV, just like v5, v6, …etc.

```
{
 "data": {
  "typename": " vehicle_update_vertex ",
 "params": {
```

```
    "vehicleID": " I001MR ",
    "vertexName": "v5"
    }
  }
}
```

4.2.3 Vehicle charging status

The status of AGV charging.

a. typename: “vehicle_charging_status”

b. params: vehicleID, status

   i. vehicleID: I001MR

   ii. status:

      1. START: AGV start charging
      2. FINISHED: AGV finish charging
      3. FAILED: AGV fail to charge

```
{
 "data": {
  "typename": " vehicle_charging_status ",
 "params": {
    "vehicleID": " I001MR ",
    "status": "START / FINISHED / FAILED"
    }
  }
}
```

4.2.4 Lift status

The status of lift on the AGV.

a. typename: “vehicle_lift_status”

b. params: vehicleID, position

   i. vehicleID: I001MR

   ii. position: HIGH/LOW

```
{
  "data": {
   "typename": " vehicle_lift_status ",
  "params": {
       "vehicleID": " I001MR ",
       "position": "HIGH / LOW"
       }
    }
}
```