

Competition Logistics

2020 AiFi AutoCheckout Competition

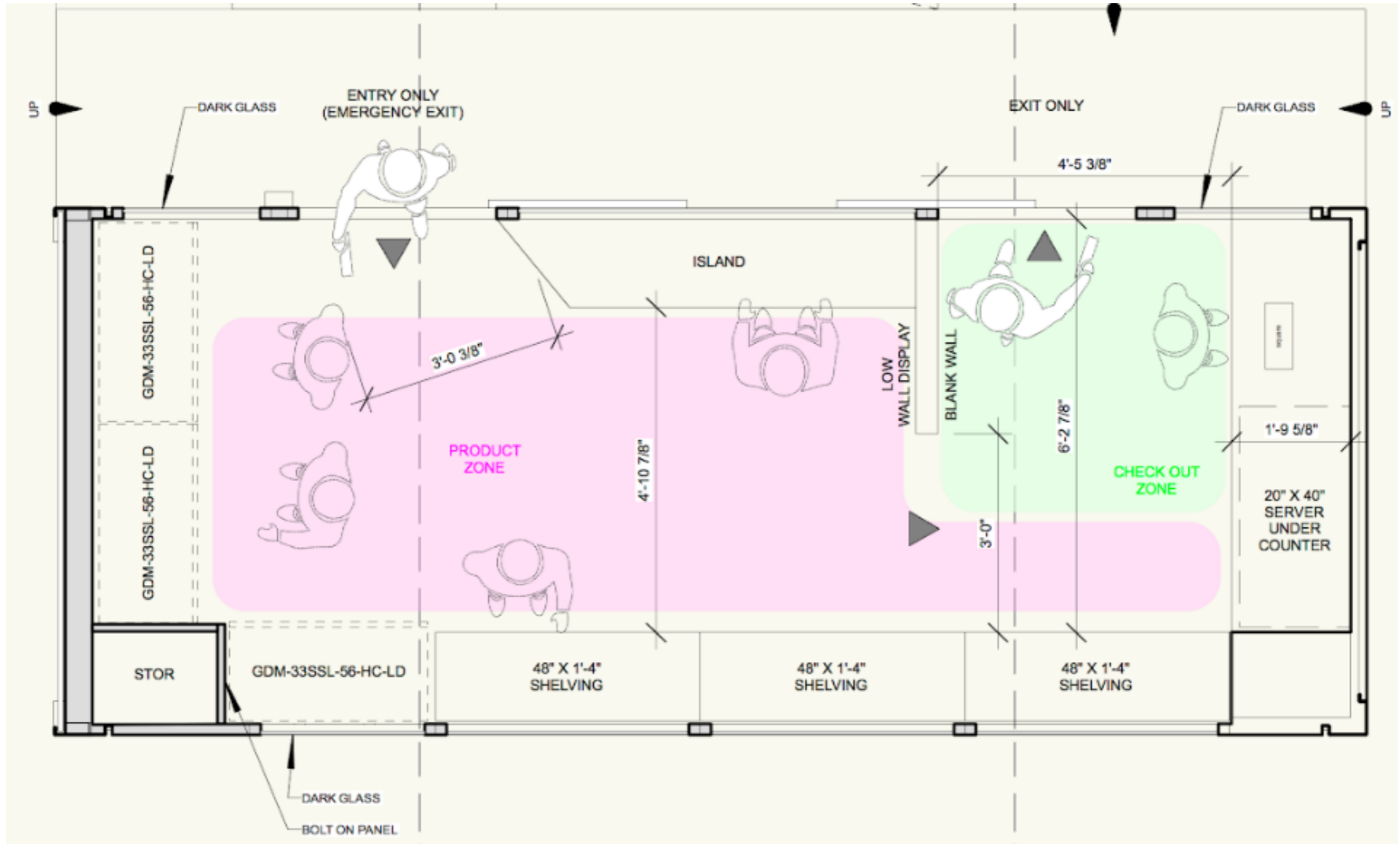
Competition Dates

- Wednesday April 22nd - Thursday April 23rd 2020
- First Day (April 22nd)
 - Setup starts early morning and the store will be open for testing until late in the afternoon
 - At the end of the setup day, all teams will have to shutdown their solutions. The organizers will take over and setup the ground truth station and the leaderboard for the following day.
- Second Day (April 23rd)
 - Evaluation starts early in the morning and continues throughout the entire day
 - Each team will have an assigned slot to run experiments and challenge each others solutions
 - The detailed time slots will be announced mid-April.

Registration

- **All members of a competing team must register for the competition in advance!**
- Registration will be available soon: <https://www.cse.unsw.edu.au/~cpsiot/cpsweek2020/reg.html>
- Teams/Team members that have not been registered will not be allowed to participate in the competition!

Shopping area (top down view)



Store example video

- Take a look at the video to understand the store layout
- Note that this is an example and the store at the conference venue may not match exactly the one in the video.
- <https://www.youtube.com/watch?v=t9Gk7n-D3j8&feature=youtu.be>

Ground Truth Measurements

- There will be cashier outside the store that will register all transactions providing ground truth for all transactions.
- Before the competition the store inventory will be registered as well as the store product layout.
- The ground truth will be collected using a commercial mobile “Point Of Sale”



Hardware Availability

- You will have access to a server grade machine with available GPUs:
 - During the setup day you will be able to run your software on any machine, however
 - During the Evaluation day the system will be running on a kubernetes cluster with 3 nodes each with 4 GPUs.
- Each team will be assigned dedicated GPUs
 - **NOTE: the number of GPUs available will depend on the number of participating teams and each teams use of GPUs.**
 - **If you solution requires extra CPU/GPU or dedicated hardware please contact the organizers: João Diogo Falcão, joao@aifi.io**

Come prepared!

- Make sure you bring everything you need
 - Ethernet cables
 - Calibration tools such as:
 - Weight scales
 - Visual patterns
 - A GPU laptop is always useful for testing without using the evolution hardware
- Power will be provided
- You need to bring any other hardware that your system requires, the organizers will not provide any additional equipment!

Example tracking input

```
"targets": [  
  {  
    "target_id": {  
      "id": "2447704166756357173"  
    },  
    "head": {  
      "point": {  
        "x": 150.5858917236328,  
        "y": -46.95917510986328,  
        "z": 69.66949462890625  
      },  
      "score": 0.999859631061554  
    },  
    "leftHand": {  
      "point": {  
        "x": 140.5858917236328,  
        "y": -36.95917510986328,  
        "z": 69.66949462890625  
      },  
      "score": 0.399859631061554  
    },  
    "rightHand": {  
      "point": {  
        "x": 145.5858917236328,  
        "y": -36.95917510986328,  
        "z": 39.66949462890625  
      },  
      "score": 0.989859631061554  
    }  
  }  
]
```

Example Output

```
"target_id": "1546875432121354212135",  
"products": [  
  {  
    "barcode": "12345678",  
    "quantity": 1  
  },  
  {  
    "barcode": "7654321342",  
    "quantity": 2  
  },  
  {  
    "barcode": "547456456",  
    "quantity": 3  
  },  
]
```

Evaluation Metric

- Receipt based F1 Score (https://en.wikipedia.org/wiki/F1_score)
- A receipt is considered correct only if all items in the estimated receipt match the all items in the ground truth receipt
- The team with the highest F1 score wins!
 - In case of a tie, the team with the lowest average latency of response wins

Competition Logistics - What to expect

- Expect people all around the store.
- Multiple people will be inside the store during setup and they will be “trying” to shop.
- Food products tend to “move”. Be aware this is a store environment and will require some attention to its organization
- Plan ahead!

Awards

- The top 3 teams will be awarded prizes:
 - 1st place: TBD
 - 2nd place: TBD
 - 3rd place: TBD
- Results Announcement
 - The results will be announced during the banquet

Poster Session

- The posters from the competition teams will not be published in the proceedings of the conference unless the same posters were submitted through the official poster track and were accepted.