

**e-Yantra Robotics Competition 2019-20**

**Theme Analysis and Implementation**

**<Team ID>**

|  |  |
| --- | --- |
| **Team leader name** |  |
| **College** |  |
| **Email** |  |
| **Date** |  |

**Testing your knowledge (Related to Hardware)**

**Q1. is the Max. Output power delivered by eYFi-Mega board [ 1 Mark ]**

<Teams should refer the Hardware Manual provided>

**Q2. The Line Follower Array has the default I2C address of 0x20. What changes must be done to change the address to 0x27?**

**Is R/W bit considered in address formation (Yes/ No)? [ 2 Marks ]**

<Teams should refer the Manuals provided.You may use figures / diagrams to support your answer.

Answer format: Text, word-limit: 50 words >

**Q3. protocol is used for communication between ATmega2560 and ESP32 on eYFi-Mega board. [ 1 Mark ]**

<Teams should refer the Hardware Manual provided>

**Q4. is the voltage range of External DC Power Supply for eYFi-Mega board.**

**is the max. current delivered by 5V when powered through External Supply.**

**is the max. current delivered by 3.3V when powered through External Supply.**

**[ 3 Marks ]**

<Teams should refer the Manuals provided>

**Q5. Where are you planning to place the eY-LFA sensor on the robot. Justify your answer.**

**[ 5 Marks ]**

<Answer format: Text, word-limit: 200 words>

**Q6. How many VL53L0X sensors are you planning to use and where you will place them on the robot. Justify your answer. [ 6 Marks ]**

<Answer format: Text, word-limit: 200 words>

**Testing your knowledge (Related to Rulebook)**

**Q1. Consider the following scenario for all the below cases:**

**Total Number of Vacancies in all Hospitals (X) = 12**

**Digits in the maze image = [2, 4, 3, 6, 7, 1, 5, 8]**

**Total Time taken to complete the task (T) = 200 sec**

**Assume the cases mentioned below, consider the locations of digits as dummy and the shortest path is communicated to robot using which it tries to traverse all the firezones planned.**

**Case I : [ 4 Marks ]**

* 1. **All Digits in image = # [2, 4, 3, 6, 7, 1, 5, 8] #**
  2. **Combination of digits for sum with their locations = # { 2: (2, 4), 3: (3, 5), 7: (3, 7) } #**
  3. **Robot visited all planned firezones correctly**

**Case II : [ 4 Marks ]**

* 1. **All Digits in image = # [2, 4, 3, 6, 7, 1, 6, 8] #**
  2. **Combination of digits for sum with their locations = # { 7: (3, 7), 4: (4, 8) } #**
  3. **Robot only missed to visit the firezone at location (3, 7)**

**Case III : [ 4 Marks ]**

* 1. **All Digits in image = # [2, 4, 3, 6, 7, 1, 5, 8] #**
  2. **Combination of digits for sum with their locations = # { 6: (4, 4), 7: (3, 7) } #**
  3. **Robot visited all planned firezones correctly**

**Fill in the values of parameters of the Scoring Formula for each case.**

<Teams should refer the Rulebook provided>

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters** | **Case I** | **Case II** | **Case III** |
| **VFC** |  |  |  |
| **VFI** |  |  |  |
| **NFP** |  |  |  |
| **NVP** |  |  |  |
| **NVC** |  |  |  |
| **NEC** |  |  |  |
| **NVH** |  |  |  |
| **B** |  |  |  |
| **Total** |  |  |  |

**IMPORTANT:**

**- The document you submit should be in YOUR OWN WORDS. To avoid any copyright violations, you must NOT copy phrases directly from manuals or web.**

**- The team should NOT mail or upload the document anywhere else except on the portal.**

**- Teams failing to submit the document by the deadline will lose the marks for this task.**

**- e-Yantra WILL NOT entertain any request for extension of deadline for uploading the task.**

**- e-Yantra holds complete discretion to disqualify a team if any foul play is suspected.**