

REPUBLIC OF TURKEY

MINISTRY OF NATIONAL EDUCATION

The General Directorate of Technical and Vocational Education

14. INTERNATIONAL

MEB ROBOT CONTEST

THEMATIC ROBOT CATEGORY

COMPETITION RULES

2020 - ŞANLIURFA

“GÖBEKLİTEPE”

THE ZERO POINT OF HISTORY

Göbeklitepe is a ruin which is situated, in terms of air distance, 15 km north-east of Şanlıurfa city center and dates back to prehistoric era, when writing hadn't been invented yet.



It is a mound approximately 300 m. in diameter which occurred as a consequence of hundreds of years of efforts by people who lived during prehistoric era and lived on as hunter and collector, on a plateau normally consisting of calcite stones, in a place where naturally an earthen peak shouldn't have taken place. In terms of its location, it has been built at one of the highest points of Şanlıurfa. It dominates the views of Harran to the south, Şanlıurfa city center to the west, Southeastern Taurus Mountains which is also a part of Mount Nemrut to the north and passive volcano Karacadağ to the east. At the same time, this point is between Euphrates River and Tigris River, in other words, in the region historically known as Mesopotamia.



Archaeological excavations starting in 1995 in Göbeklitepe require some change and transformation which happened during Neolithic era and are turning points of history of humanity to be discussed again. Neolithic era, when settled life became widespread and agriculture and animal husbandry started, used to be described with the change in terms of especially people's livelihood, dietary patterns and device technology before the exploration of Göbeklitepe.

Monumental structures and advanced symbolism that were found out in Göbeklitepe revealed that there are important developments in terms of not only nutrition and technology but also spiritual perspectives in Neolithic era.

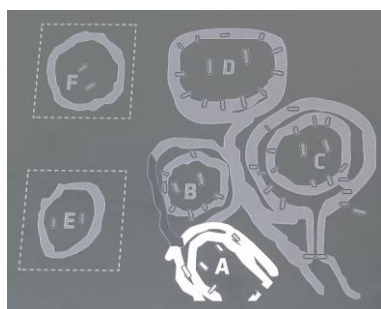
Göbeklitepe proved that, at a point where it can be counted as rather early during history of humanity, there is a social order which can be assumed as “complex”, which means people can complete missions not just because of the fact that they need to be busy with the effort of survival but also they can cooperate to complete missions that require long time and work force. By looking at these features of it, it comes to mind that Göbeklitepe may have been a regional gathering center. Göbeklitepe's universal value has been approved by the area's being in the UNESCO World Heritage List in 2018.



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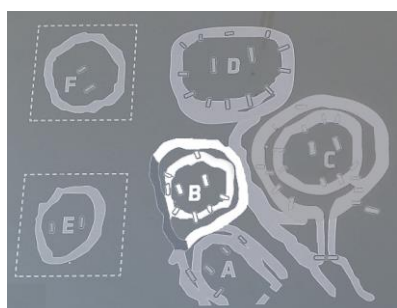
Human activities that started about 11.600 years ago in Göbeklitepe continued about more than a thousand years. History of humanity's oldest monumental architectural work

and especially standing stones that were ornamented with different species of animal descriptions can be counted as one of the most remarkable ruins that people of prehistoric era left in Göbeklitepe during this long time period that comes up to a stage of Neolithic era when pottery wasn't used to be used. Calcite plateau that provides building material and comprise a basis for structures in question lies down and surrounds the mound.



Building A: Building A dates back to the end of the Pre-Pottery Neolithic A (PPNA) phase and/or beginning of the Early Pre-Pottery Neolithic B (EPPNB) phase. Northwest endpoint of the building measuring 12x13 ends with coordinate in front of which there is a low stone set. Base of the building hasn't been reached yet. It is situated in a place between southwest and southeast peaks of the area. At the north endpoint of the building, in both sides of the coordinate, there are 2 T-shaped calcite standing stones ornamented with decorations. Smaller

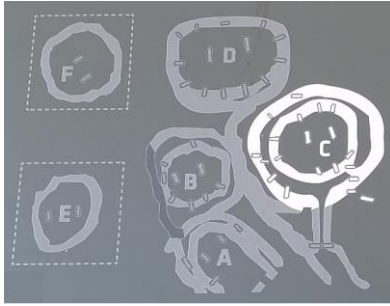
sized standing stones placed inside the walls that are in the southwest and northeast directions are seen. Entrance of the building is probably in the southeast wall; traces of door openness that were made with "U" shaped stone was found here, in the basement. A similar version of this stone is known from the entrance of Building C.



Building B: Building B, situated in the north of Building A, dates back to the beginning of the Pre-Pottery Neolithic A (PPNA) phase and/or the Early Pre-Pottery Neolithic B (EPPNB) phase. Building is 12 meters in diameter round planned. Unlike Buildings B and C, which were built on machined limestone bedrock, the base of Building B was covered with a mortar called "terrazzo". The two standing stones at the center of the building are bigger than the

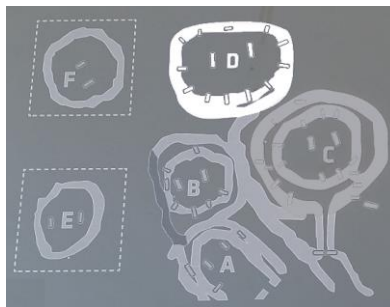
others. Inside the wall that surrounds the building, there are nine more standing stones and it will probably be more with the upcoming excavations.





Building C: Building C is situated to the east of Building B. It is an impressive building, round-oval about 25 meters in diameter. This is the biggest building that has been explored in Göbeklitepe so far. It dates back to the beginning of the Pre-Pottery Neolithic A (PPNA) phase and/or the Early Pre-Pottery Neolithic B (EPPNB) phase. Building C is situated directly on top of rectified limestone bedrock and has three intertwined facade walls, each reflecting a different phase. The outermost wall was built in the oldest phase, the innermost one was built in the newest phase of the building.

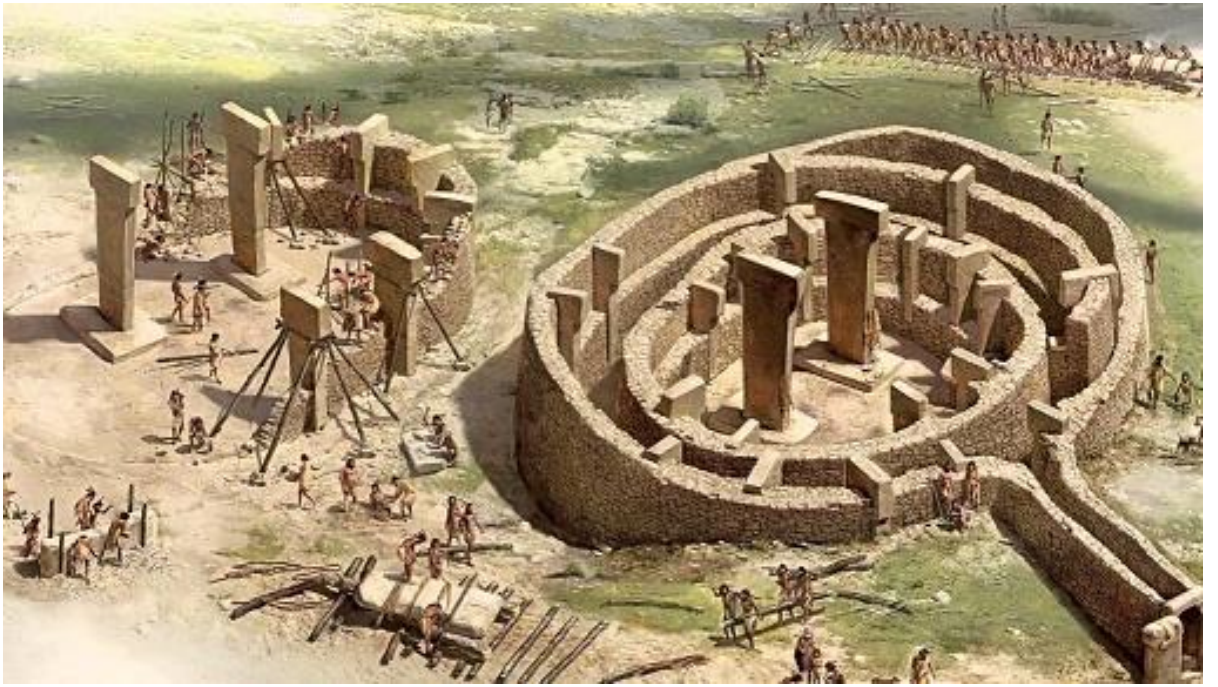
There were 9 T-shaped standing stones in the original position on the inner wall, and there were probably more of them when the building was first built. At the center of the building, 2 pedestals carved into natural limestone bedrock hold a pair of larger T-shaped standing stones. A narrow corridor (dormos) lies down from the outer wall to inside must be the oldest entrance of the building. Entrance to this corridor is provided with a U-shaped stone on the west side, on which there is a description of a predatory animal.

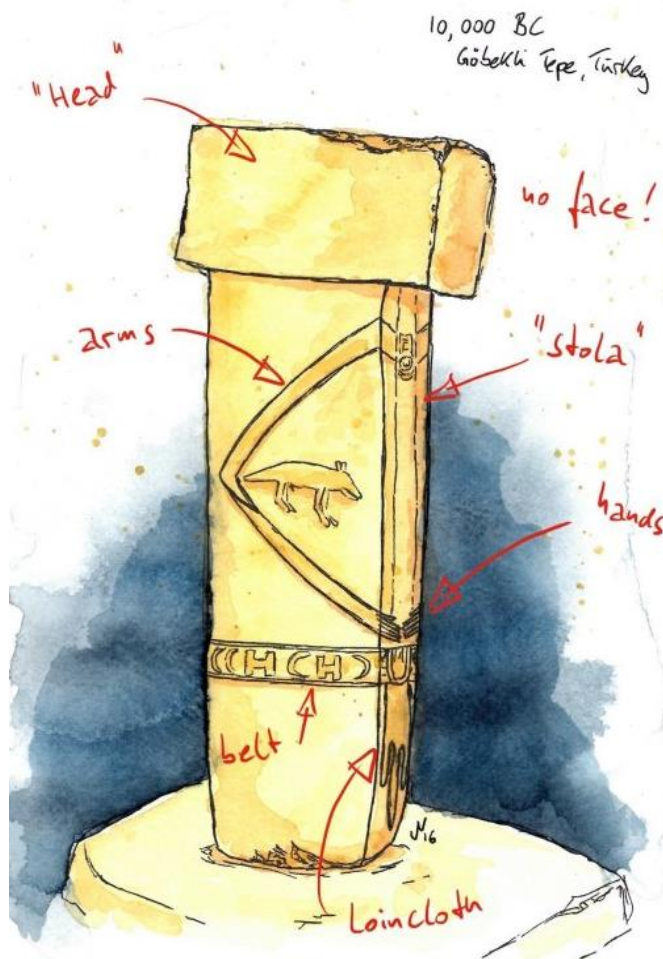


Building D: Building D is the best preserved one among the monumental buildings explored in Göbeklitepe so far. At its widest point, 20 meters in diameter, oval-planned building is built on elaborately corrected bedrock like Building C. Building C dates back to the beginning of the Pre-Pottery Neolithic A (PPNA) phase and/or the Early Pre-Pottery Neolithic B (EPPNB) phase. The two standing stones are also located within shallow pedestals carved up to 15 cm from the bedrock. Inside the building wall, there are 12 standing

stones placed at regular intervals smaller than those in the center. Traces of wall plasters were encountered in some parts of the building. The fact that the wall plasters are preserved indicates that the top of the building was covered. In the center, large standing stones placed in shallow pedestals must provide additional support to the roof.







a- Description of T-column

b- Lion emboss on T-column

The characteristic T-columns can be recognized as larger-than-life human (like) sculptures due to a number of specific elements (Çizim: J. Notroff)

Source:

- (1) <https://muze.gov.tr/s3/MysFileLibrary/%C5%9Eanl%C4%B1urfa%20G%C3%B6btepe-138f51af-997e-4eab-9281-6b9b9d5ad764.pdf>

THEMATIC ROBOT CATEGORY RULES "AHICAN IS AT THE ZERO POINT OF HISTORY"

Thematic robot competition consists of a platform and a course.

Platform; It is the area that all games of this competition are played.

Course; It represents Göbeklitepe area by using renewable energy sources. Course is formed by three stage tasks.

Two teams will race on the platform at the same time with **two wireless controlled robots.**

*** It is not allowed to use wired controlled robot

Before racing, robots will be placed starting points of both course A and B and one operator of each team will be ready for racing.

There are two globes and one rectangular prism in blue field, one rectangular prism in yellow field and one rectangular prism in orange field inside material zone near starting points of both course A and B. Blue items represent stones that will use to construct wall, yellow item represents head of human depicted by T column and orange item represents lion relief on T column. Team's stopwatches will be started at the same time and race starts.

Robots complete the following tasks respectively.

Tasks;

Task 1. Robot picks up blue globes and rectangular box and brings them to the wall construction place put them into the sockets.

Task 2. Robot picks up the box that represents human head inside the yellow zone and brings it near to T column. After that robot puts the head on the top of headless T column located outer place.

Task 3. Robot picks up the box which represents lion inside the orange zone and brings it near to another T column located inner place. After that robot puts the lion on the body of T column.

Tasks will be completed by order. When robot finishes all tasks and lights up T columns, game will end and its chronometer will stop.

Team that gets best score in shortest time will go next tour. Total score and time will be considered while listing teams.

Digital Chronometer : It is located in competition area as seen from everywhere.

COMPETITION PLATFORM

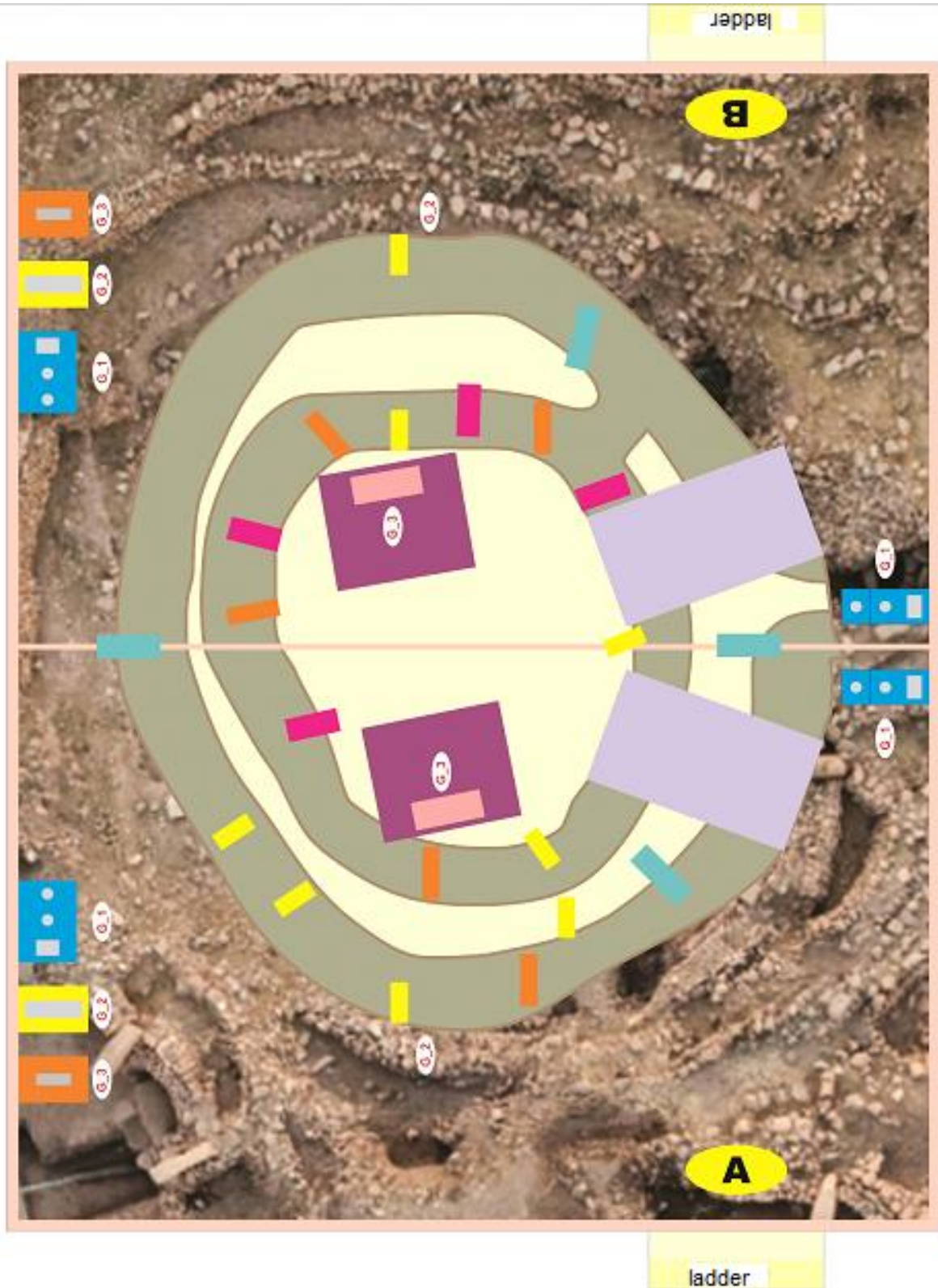


Figure -1 Top view of platform

Platform : It is covered by colorful printed foil.

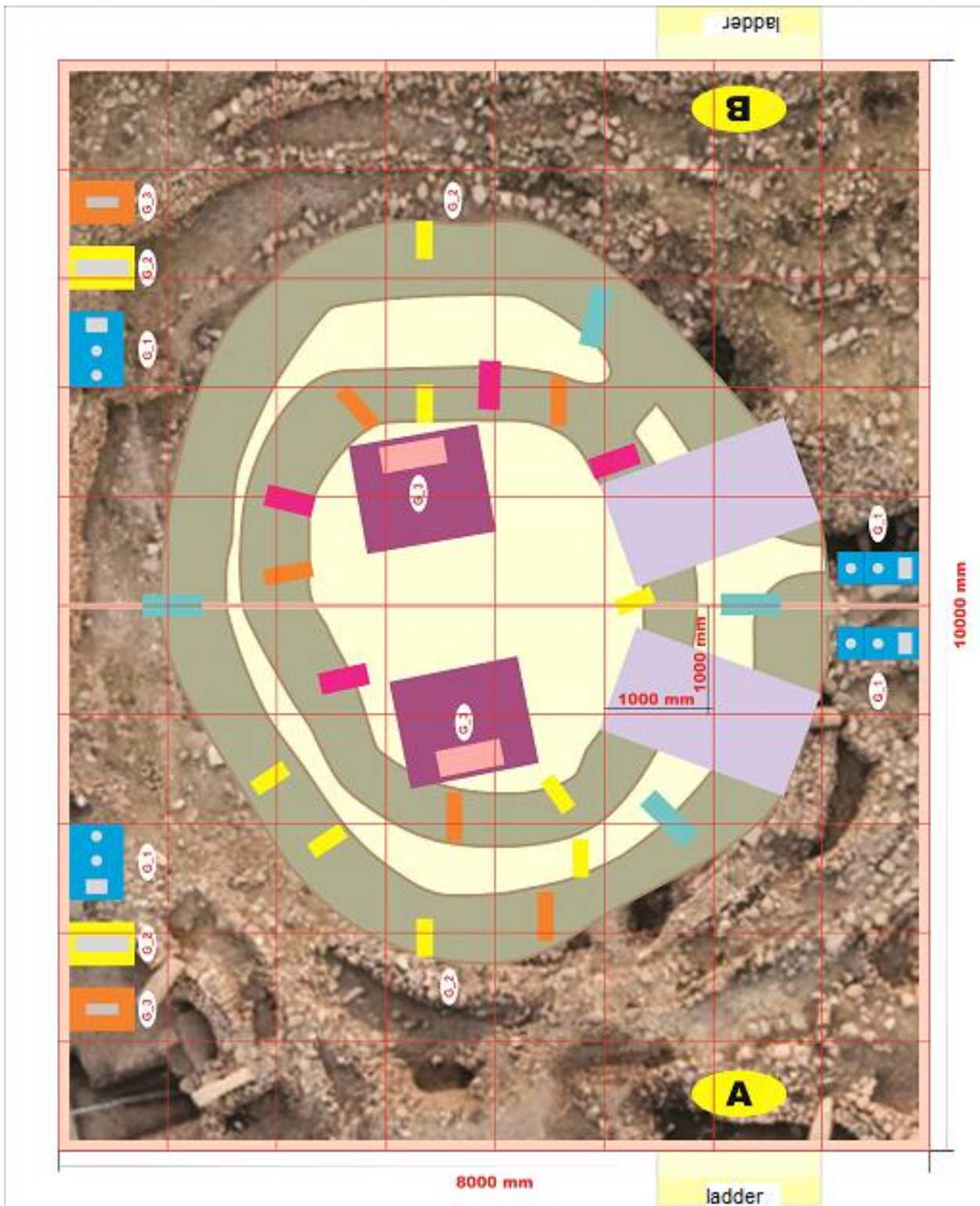


Figure-2 Grid view of Platform.

COMPETITION COURSE

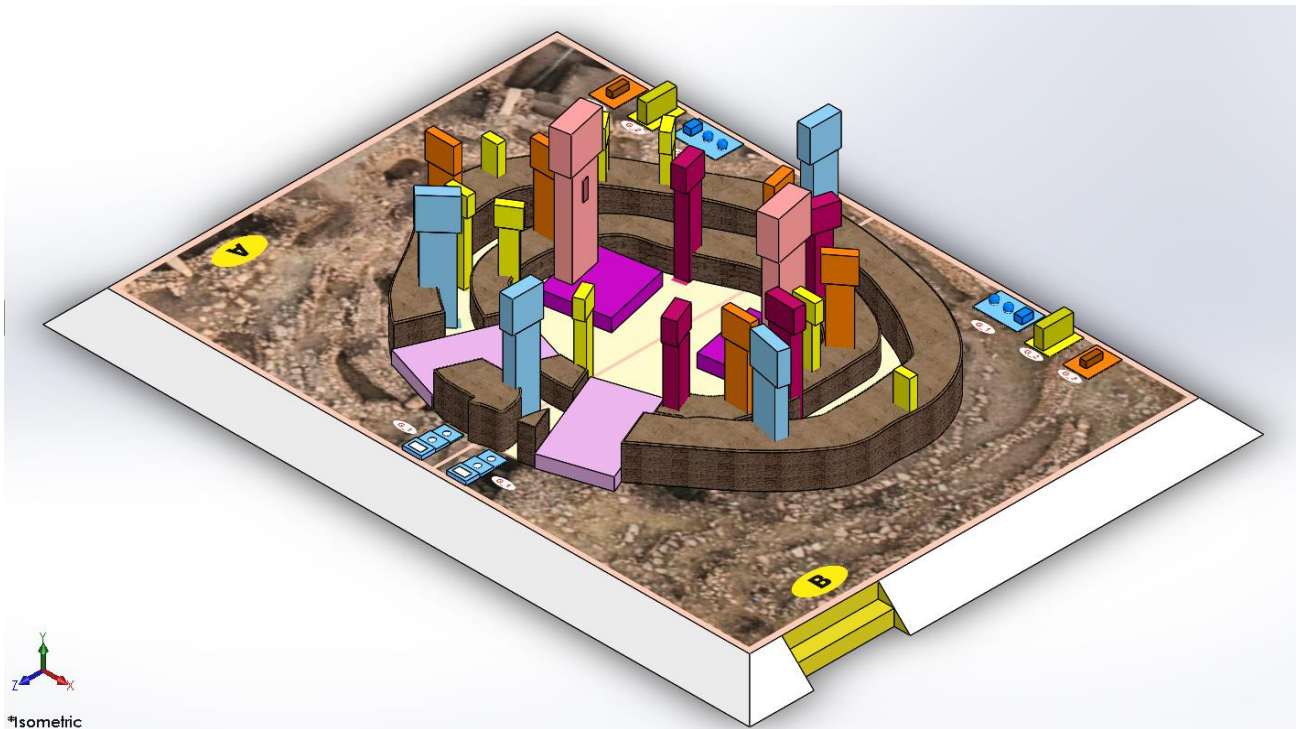


Figure-3 3D view of course A and course B

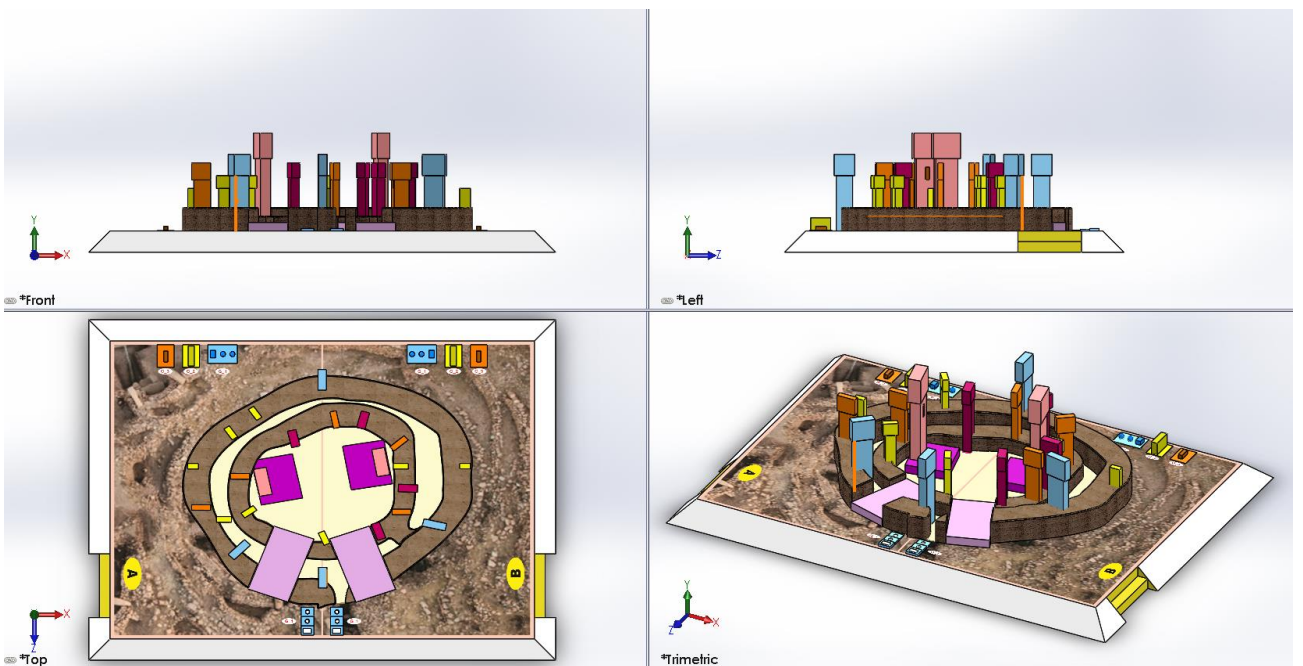


Figure -4 Perspective view of courses on the platform

Platform: It represents Sanliurfa / Gobeklitepe

Course: There are two courses symetrical each other. It is prepared as A and B to allow racing two teams at the same time.

ROUTE (Göbeklitepe)(WIRELESS CONTROLLED ROBOT)

Before racing, robots will be placed starting points of both course A and B and one operator of each team will be ready for racing. Timing of both teams will start at the same time by judge's command and race will start.

Robots complete the following tasks with same order on the courses.

Tasks:

Task 1. Robot picks up blue globes and rectangular box ,

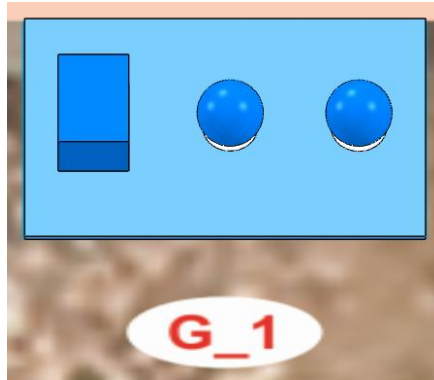


Figure 5 Blue color task-1 materials

and brings them to the wall construction place put them into the sockets.

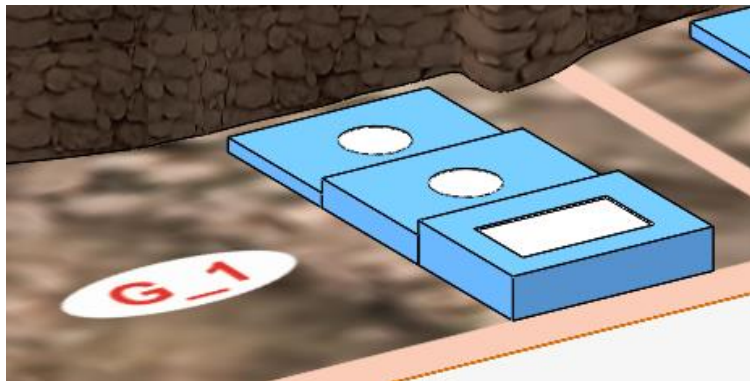


Figure 6 Places that materials are put. (target place)

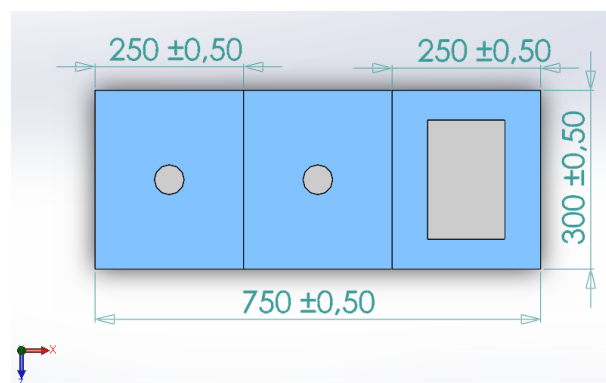


Figure 7 Dimensions of target place (top view)

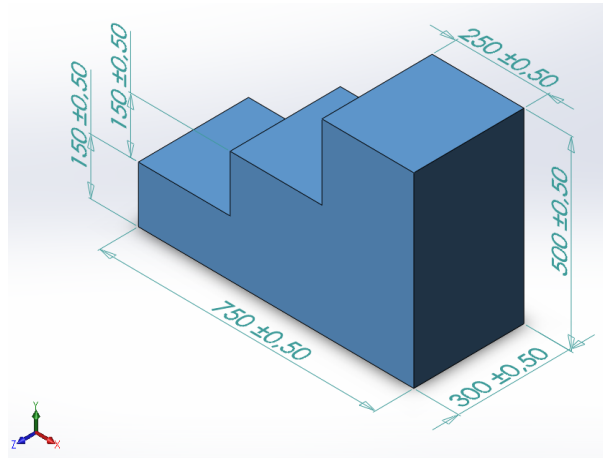


Figure 8 Dimensions of target place of task 1 (isometric view)

Task 1 Materials

Globe: Rubber handball ball will be used as globe (58-60mm diameter, 425-475gr. weight)

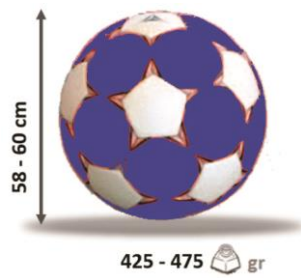


Figure 9 Globe

Blue box: It will be made from pinewood and covered with blue foil.(130x200x130mm)

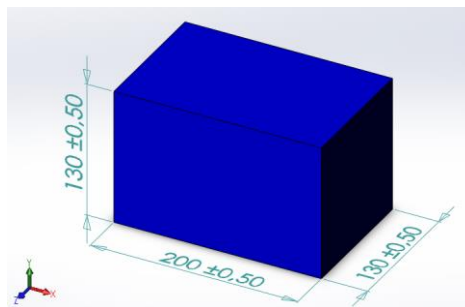


Figure 10 Blue box dimensions

Task 2. Robot picks up the box which represents human head inside yellow zone and brings it near to T column.

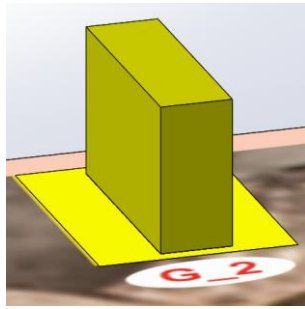


Figure 11 Yellow colored box, task-2 material

After that robot puts the head on the top of headless T column located outer place.

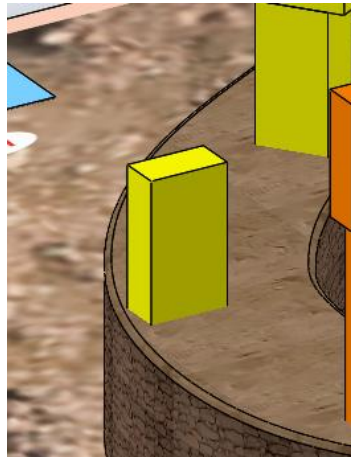


Figure 12 Headless yellow column of task-2

Task 2 materials

Yellow box: It is a box (160x450x300mm) made by combining 3 pieces 5 mm heat isolation boards(28-32 DNS) . Its two surfaces will be covered with plywood (300x450mm, 4mm thickness) and also covered with yellow foil

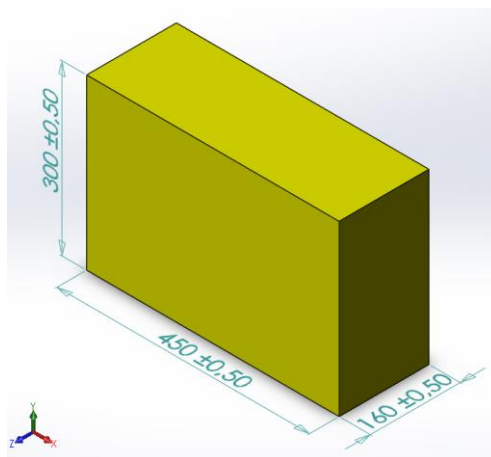


Figure 13 Yellow box dimensions (task-2)

Task 3. Robot picks up the box which represents lion and covered with orange foil inside the orange zone

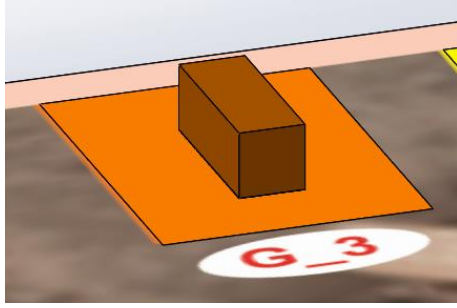


Figure-14 Material for Task-3

then robot crosses the barrier shown at figure-15

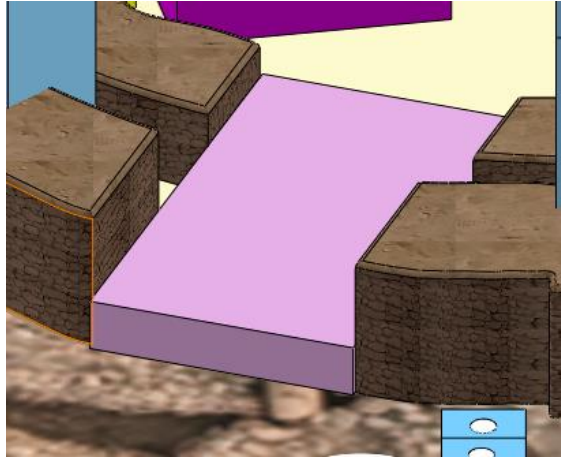


Figure-15 Barrier to enter inner zone of platform

Robot brings the orange box near T column located inner of platform and puts it to pink place on the body of T column

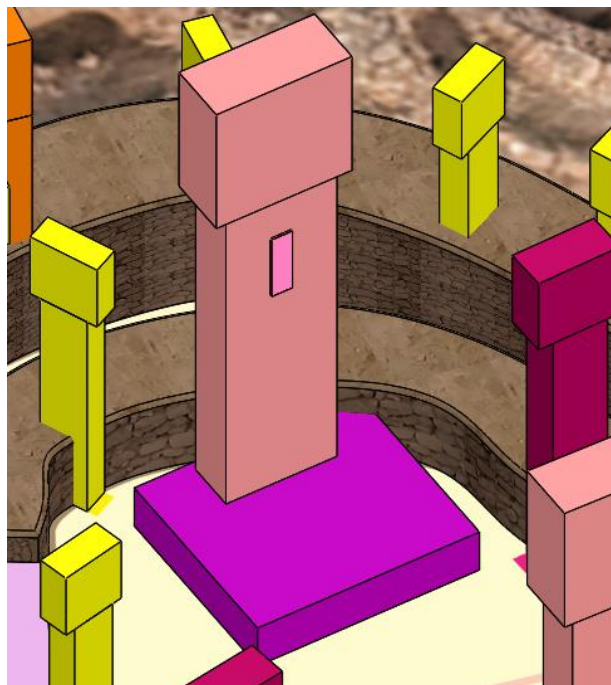


Figure-16 T column on purple platform inside Gobeklitepe

Task 3 materials

Orange box: It is a box (100x300x100mm) made with poplar tree and its surface will be covered with orange colored velcro tape to stand on top of T column without drop.

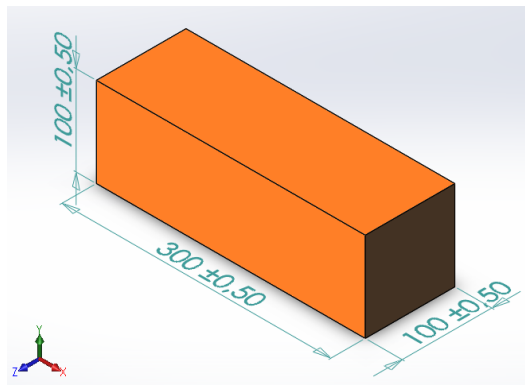


Figure-17 Dimension of Task-3 material

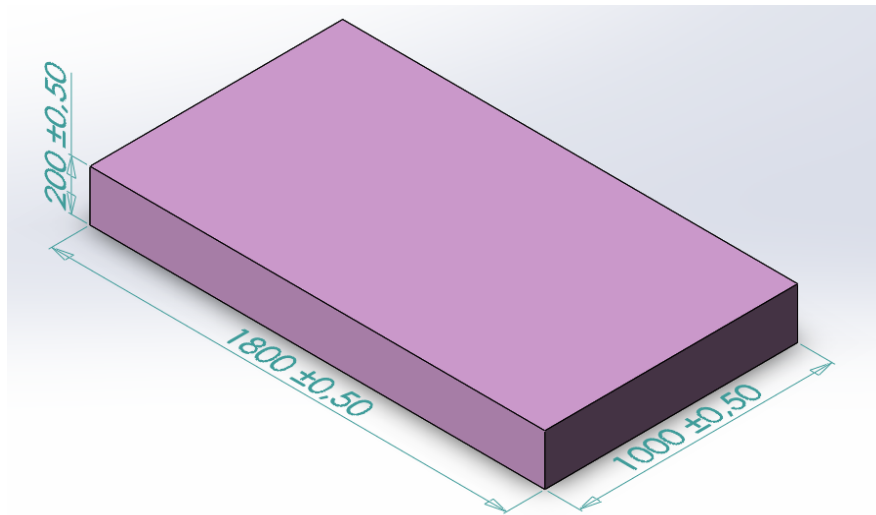


Figure-18 Platform of barrier to cross inner zone

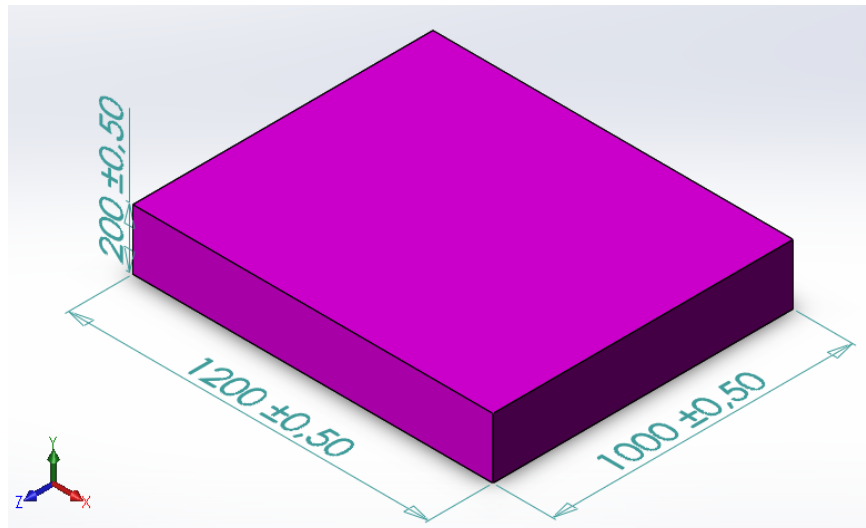


Figure-19 Dimensions of purple platform (T column on it)

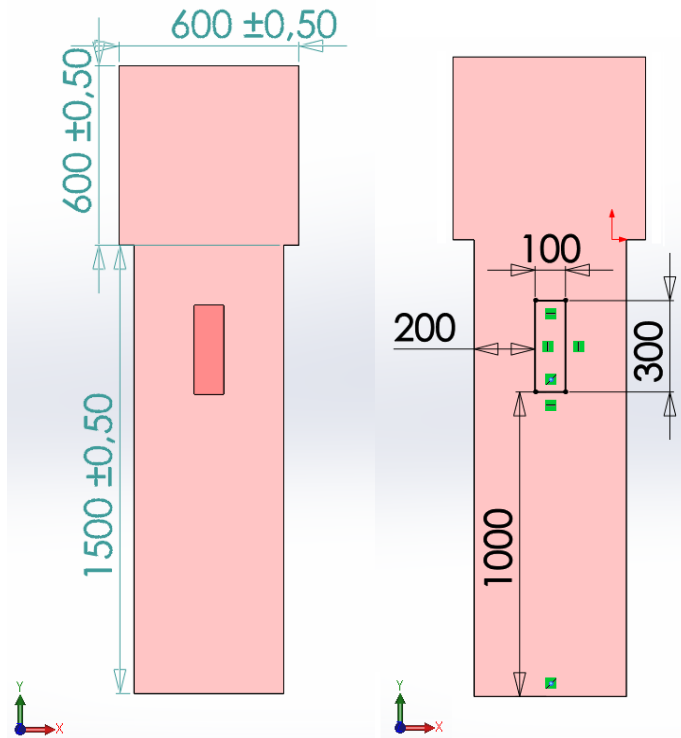


Figure-20 Dimensions of T column located inside Gobeklitepe

Place which orange box will be put on : There will be a pink colored velcro tape inside a rectangular drawn on T column. (When the box is sticked on this surface, it must stay without drop)

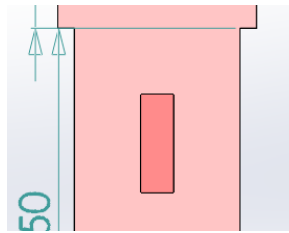
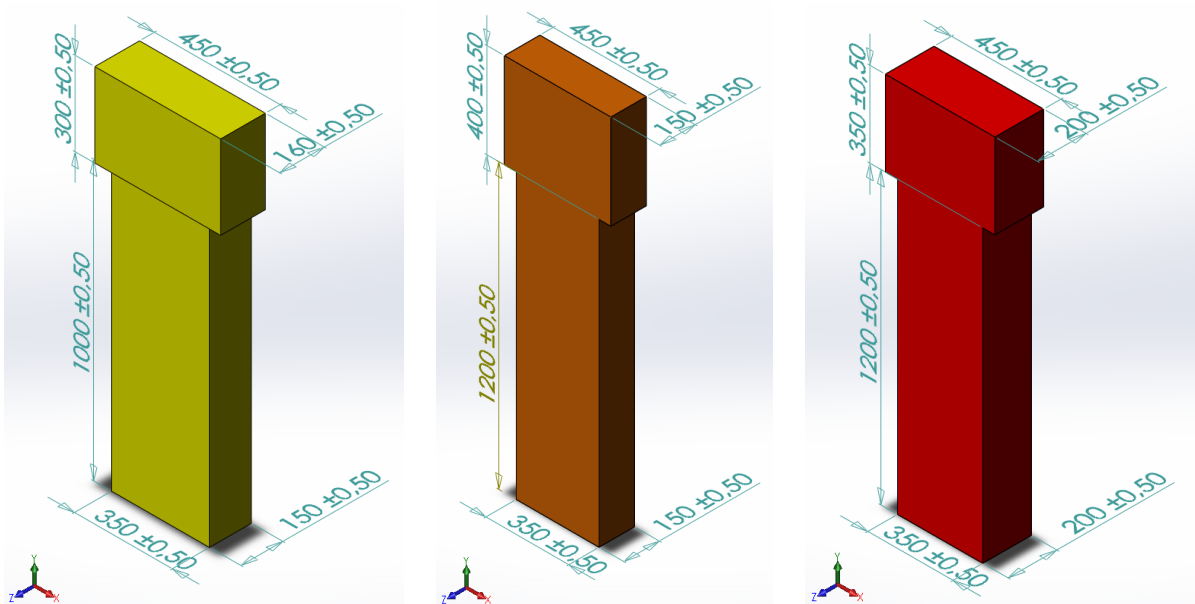


Figure-21 Pink colored place on T column to put G_3 material



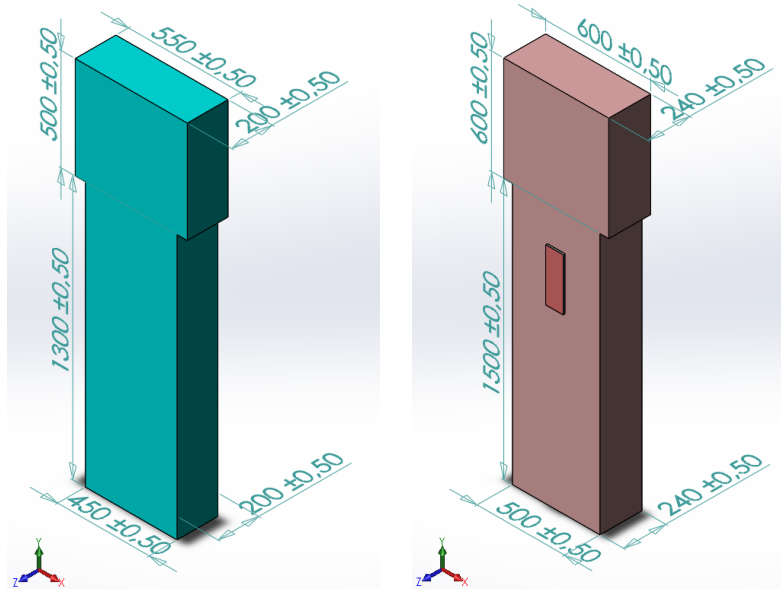


Figure-22 Dimensions of T columns placed on platform

Tasks will be completed by order. When robot finishes all tasks and lights up T columns, game will end and its chronometer will stop.

Team that gets best score in shortest time will go next tour. Total score and time will be considered while listing teams.

GENERAL RULES

- 1.** Each team has two robots and two members. A Robot **can not be used for more than one team.**
- 2.** Any equipment or material used on robots must not have characteristics cause to injury audience, competitors and damage to platforms. Water, oil, inflammable liquids or gases and dangerous chemical materials are not allowed. Robot will be disqualified if it is noticed that such a kind of materials mentioned above was used.
- 3.** Maximum two team members can stand inside the competition area but only one can stand on the platform while the team competing.
- 4.** Total weights of robots should be maximum **25kg.** (include all hardware and equipments such as power supply etc.)
- 5. Robot will be wireless controlled.** It is not allowed to use wired controlled robot
- 6.** It is not allowed that any intervention to robots by wired, wireless or infrared etc. until it finishes the tasks.
- 7.**Power supplies of robots should be maximum **DC24 V.**
- 8.** Competitor has to be ready inside the competition area within **3 minutes** when they are invited to race. If the competitor requests extra time because of the reason about failures on robots, extra time maximum **10 minutes** will be given to competitor just one times. In this case, next competitor will start to competition. This rule (extra 10 minutes) will be applied only in first day racing **but not in semi final, final competitions.**

9. Team A and B will start racing at the same time.
10. Once the chronometer starts, it isn't stopped until the end of race. If chronometer inside competition area is broken, judges will continue with stopwatches.
11. Robot will take all materials with its own mechanism.
12. Robot will take blue colored globe and box from G_1. Then it will bring them to target place G_1 on the platform with its own mechanism
13. Robot will take yellow box from G_2 and bring it to target place G_2 with its own mechanism. After that robot will put it on top of T column.
14. Robot will take orange box from G_2 and bring it to target place G_3 located in center of platform with its own mechanism. After that robot will put it on body of T column.
15. When robot completes all task, timing will stop and game will be over.
16. **Time:** It is **10 minutes**. In this time:
 - a. When robots cannot complete any task because of any reason, this task will be skipped by request of competitor and acceptance of judge. Then, competitors will continue to do next task. Time penalty (5 min) will be added to team's total time for each task which is failed.
 - b. If competitor couldn't complete task-1 and go to task-2, he/she has to complete task-2. If competitor also requests to skip to task-2 (it means two uncompleted tasks in total), time penalty will be given and judge will end the game.
 - c. If competitor couldn't complete task-2 and go to task-3, he/she has to complete task-3. If competitor also requests to skip to task-3 (it means two uncompleted tasks in total), time penalty will be given and judge will end the game.
17. If robot drops the box, it needs to take the box again then continue the race with its own mechanism. If robot cannot take the box again, second competitor will take the box and put it on starting point by permission of judge. Robot will take the box from this location and continue the racing.
18. In case of manual intervention to robots (except judge's warning and other cases explained above), time penalty (30sec.) and penalty score will be given to team. In this case, it is assumed that it's last task was not completed and this task will be repeated from starting point.
19. Robot will end the game when it makes turning on the lights of Göbeklitepe

SCORING

TOTAL SCORES FOR TASKS: 600 Puan

SCORES:

Robot picks up 1.globe from blue zone G_1	30 score
Robot picks up 2.globe from blue zone G_1	30 score
Robot picks up the box from blue zone G_1	50 score
Robot puts 1. globe in task field G_1	30 score
Robot puts 2. globe in task field G_1	30 score
Robot puts the box in task field G_1	50 score
Robot takes the box which is head of T column from yellow zone G_2	50 score
Robot leaves the box which is head of T column into yellow zone G_2	60 score
Robot picks up the box from orange zone G_3	50 score
Robot climbs up on the purple colored platform with the G_3 material	50 score
Robot crosses through the purple colored platform and reaches inner field	40 score
Robot climbs up to the purple colored platform	60 score
Robot puts the box on T column in G_3	70 score

PENALTIES

In each case that box are dropped	-10 score
Manually intervention	-30 score
No finish in 10 minutes (for each additional minute)	-20 score

(when stopwatch shows up 12:00:00, judge ends the competition and declares the time and total marks of team.)

TIME PENALTY

If robot skips the task without completing	+5 minute
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DISQUALIFICATION REASONS

1. Using wired control

2. If any team tries to control robot with wireless, infrared etc. ,

3. If the teams act behaviours which don't respect to the spirit of fair play before, after or during the competition

4. If the teams don't obey the rules and instructions of judges.

5.If the robots damage the platforms during the competition. (by using any kinds of liquits/gases which are inflammable or any dangerous chemical substances, etc.)

6. If different competitors use same robot / robots (when judges determine such case , both teams will be disqualified.)

COMPETITION STRUCTURE

This competition will be carried on in different days as first and second tours. First tour means qualification games , second tour refers to qualifying top 20 teams get best scores in first tour and determining the teams get right to go to quarter final. Quarter, semi-final and final matches will be carried on as elimination method.

FIRST TOUR (QUALIFICATION RACES) RULES

Games will be started after draw lots. All teams will race alone to get best score and time. They will try to make effort to enter top 20 in ranking list.

Priorities;

Teams will be sorted according to following priorities.

- Teams which finished both routes and all tasks completely (with full score: 600)
- Total scores.
- Total finish time in case of equality.
- Lighter one in total weight, if their scores are still equal.

* Team's score and time are declared within 5 minutes.

SECOND TOUR RULES

First 20 teams will get right to compete at second tour according to the result of first tour games.

Racing order will be determined by draw lot. All teams will race alone to get best score and time. They will try to make effort to go quarter final.

Priorities;

Teams will be sorted according to following priorities.

- Teams which finished both routes and all tasks completely (with full score: 600)
- Total scores.
- Total finish time in case of equality.
- Lighter one in total weight, if their scores are still equal.

* Team's score and time are declared within 5 minutes.

QUARTER FINAL RULES

First 8 teams will get right to compete at second tour according to the result of second tour games. Racing order will be determined by draw lot.

Priorities;

Teams will be sorted according to following priorities.

- Teams which finished both routes and all tasks completely (with full score: 600)
- Total scores.
- Total finish time in case of equality.
- Lighter one in total weight, if their scores are still equal.

* Team's score and time are declared within 5 minutes.

SEMI-FINAL RULES

First 4 teams will get right to compete at second tour according to the result of quarter games.

Racing list will be determined by draw lot. First team on the list will match with 4th.team and Second team will match with 3th.team

Priorities;

Teams will be sorted according to following priorities.

- Teams which finished both routes and all tasks completely (with full score: 600)
- Total scores.
- Total finish time in case of equality.
- Lighter one in total weight, if their scores are still equal.

* Team's score and time are declared within 5 minutes.

FINAL GAME RULES

Two teams will get right to compete at final game according to the result of semi-final games. Racing order will be determined by draw lot.

Priorities;

Teams will be sorted according to following priorities.

- Teams which finished both routes and all tasks completely (with full score: 600)
- Total scores.
- Total finish time in case of equality.
- Lighter one in total weight, if their scores are still equal.

* Team's score and time are declared within 5 minutes.