



# ARCG

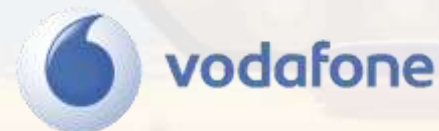
ASWAN ROBOTICS COMPETITION



## Aswan No Terror

# BOOK OF RULES

## UEA<sup>6</sup>





## ABOUT APEL TEAM:

Aswan Practical Engineering Lab (APEL) is a student activity at Aswan faculty of engineering that aims to spread knowledge in different fields of science and technology in Upper Egypt. One of our main goals is improving the student's level in electronics, programming and robotics; thus, we organize a robotics competition (ARC) every year to increase the interaction between the Theoretical and the practical science.

## ARC 6 THEME:

Welcome to ARC 6 (Aswan robotics competition) and this year's game is ASWAN NO TERROR!

A terrorist attack is coming on Aswan city. And It occupies the west bank of the Nile river, so Aswan's army is now massing its forces on the eastern bank of the Nile to combat this attack. Each army allies with one of the compotator's teams to defeat the other army.

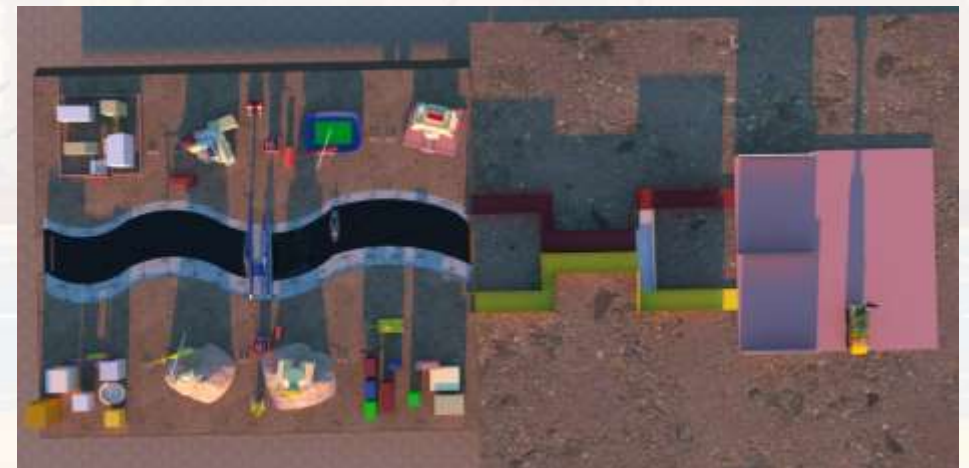


## QUICK GUIDE:

A match will start by two teams against each others, it lasts in 10 minutes, each team should have one robot that works manually and automatically.

## THE BATTLE FIELD:

The battle field is an architectural maquette for Aswan city, each team is asked to build one robot that will be controlled manually to shoot targets occupied by the other team, the more targets you shot the higher score you gain. In the last stage of the war the robot has to shoot the target automatically.





## BATTLE FIELD (PLACES AND TARGETS)

A Spying Communication vehicle

Fortified Trench

Fortified Bunker

Aswan Nile museum

Helicopter

Aswan international Stadium

The Missile store

Aswan Railway-station

Tank

Bunker

Aswan Faculty of engineering

Supplies Ship

Tank

West Soheil village

Fortified Bunker

Mausoleum of Aga-Khan

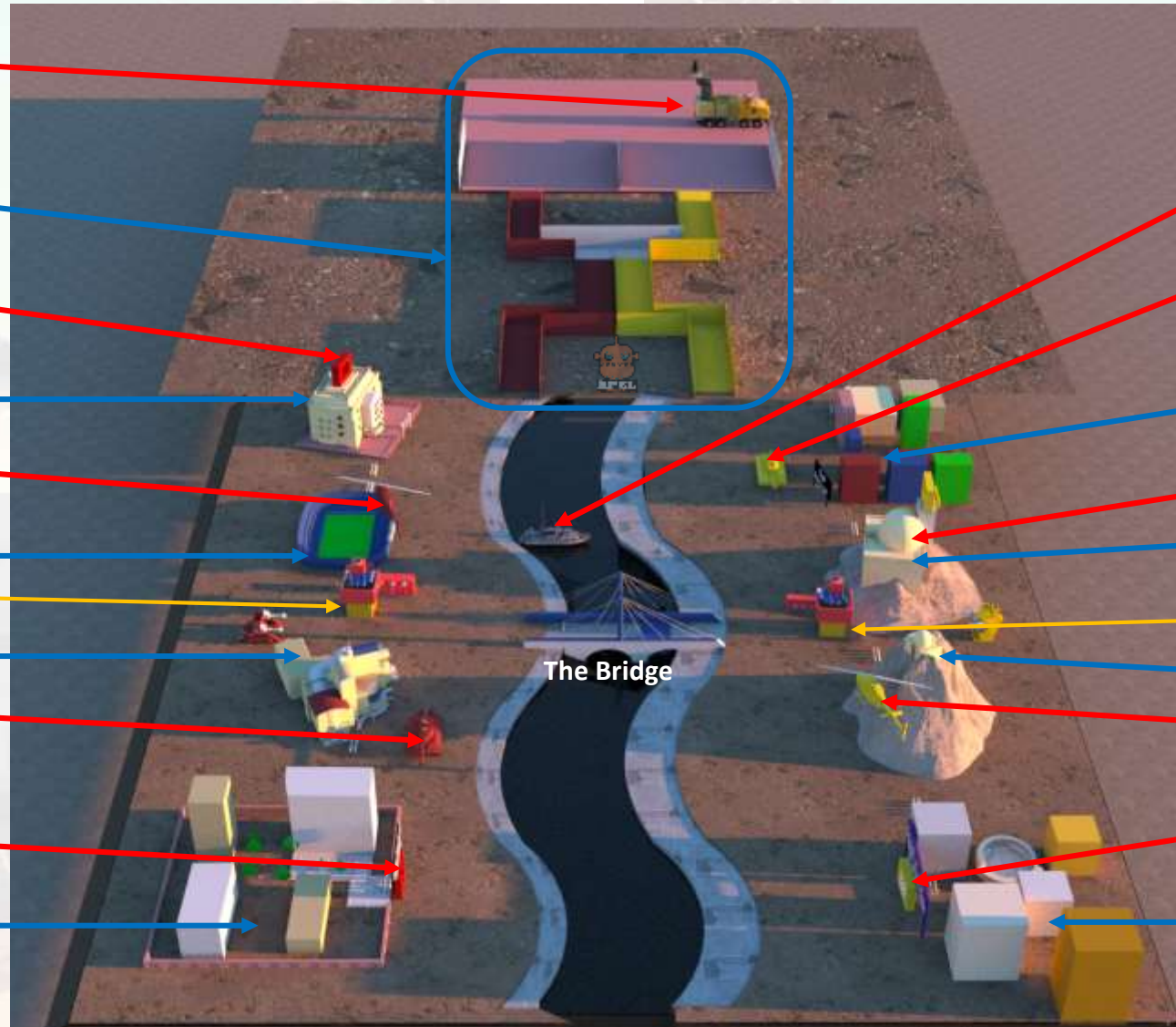
The Missile store

Tombs of the nobles

Helicopter

Bunker

Aswan University



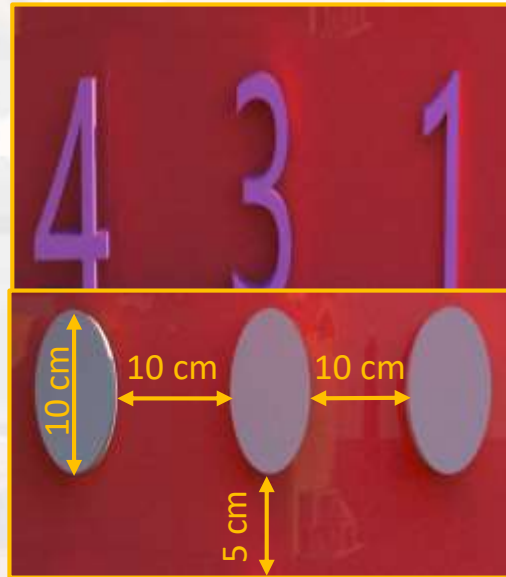
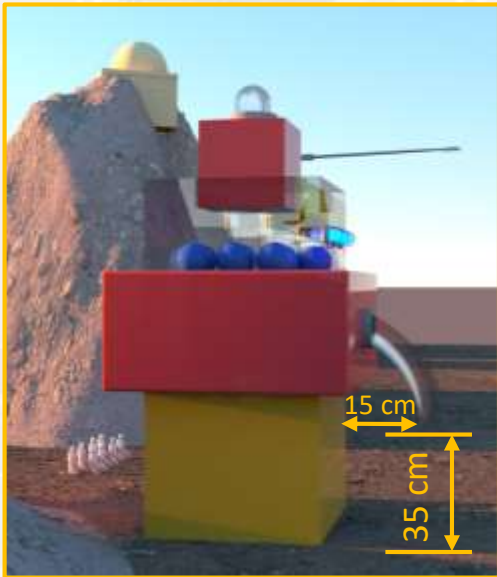
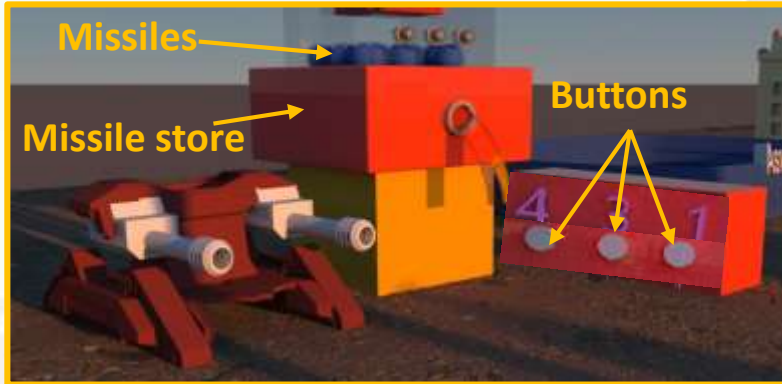




# BATTLE-FIELD (SCORE & DIMENSIONS)



## ❖ THE MISSILE STORE



## ❖ THE MISSILE STORE

- ❖ By the starting whistle each robot moves toward the **Missile Store** which contains **25** missiles, **22** for the manual control stage and **3** for the automatic control stage.
- ❖ You can choose the number of missiles you need (1, 3 or 4), if you need more you can bush any of the buttons again after loading.
- ❖ The missile is a Ping-Pong ball with a diameter **4 cm** and weigh **2.7g**.
- ❖ You gain **one point** for each missile you load in your robot successfully.



# 1- MANUAL CONTROL TARGETS

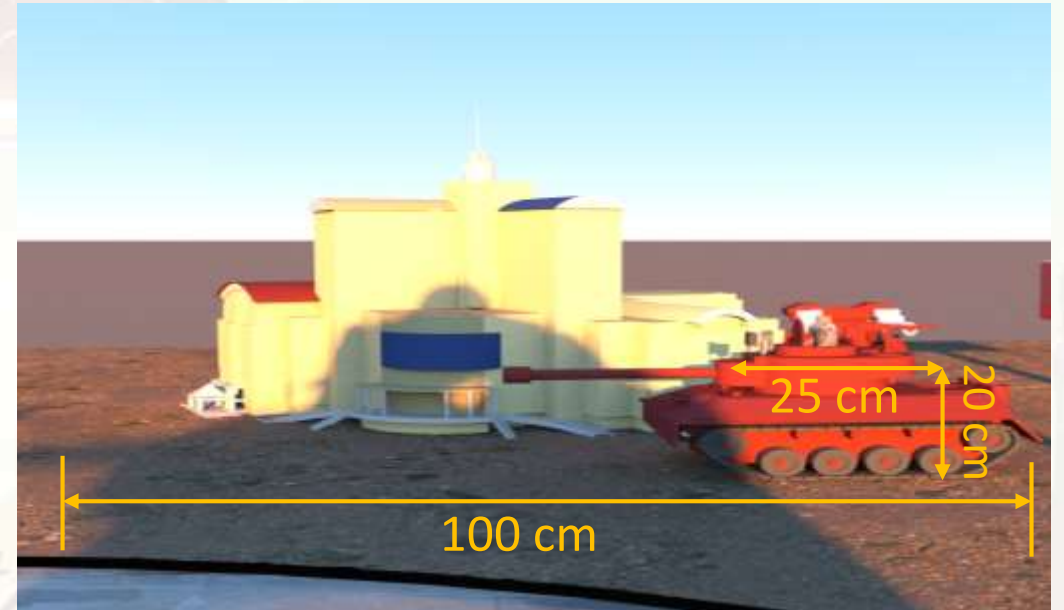
## 1- THE BUNKER



- ❖ The Bunker is a static target.
- ❖ You gain **2 points** for each time you score in the bunker successfully.



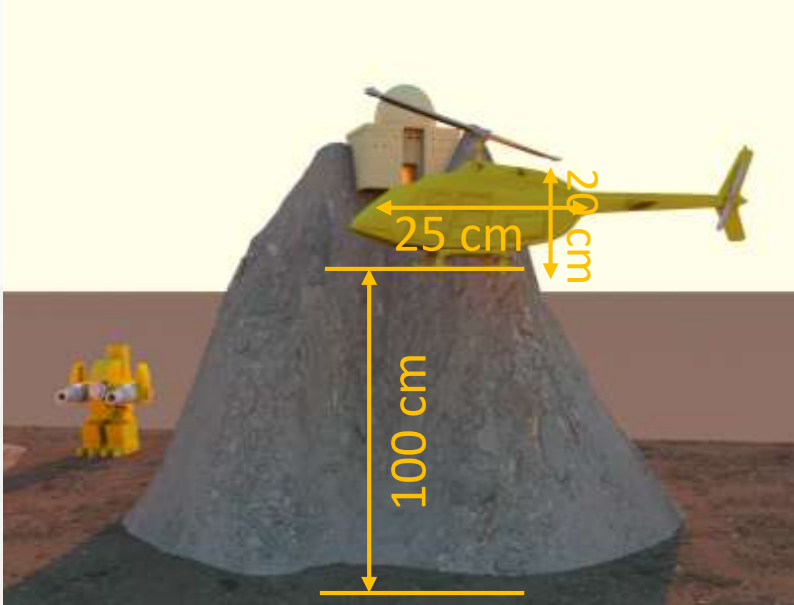
## 2- THE TANK



- ❖ The Tanker is a moving target for a distance of **1 meter**.
- ❖ You gain **3 points** for each time you score in the tank successfully.



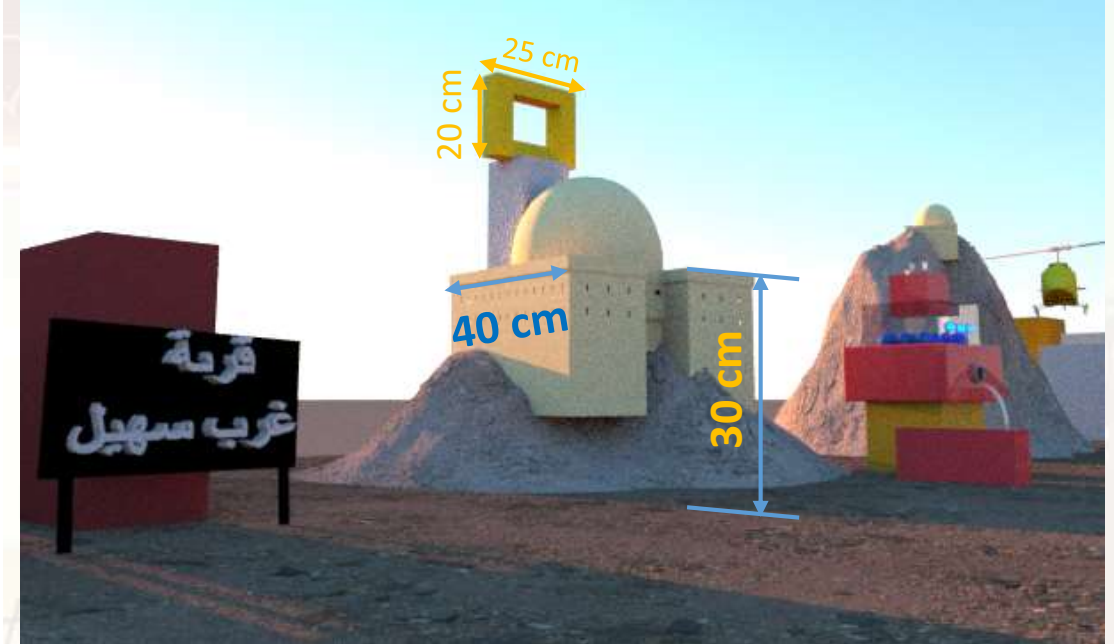
### 3- THE HELICOPTER



- ❖ The Helicopter is a moving target for a height of **1** meter.
- ❖ You gain **4 points** for each time you score in the helicopter successfully.



### 4- THE FORTIFIED BUNKER

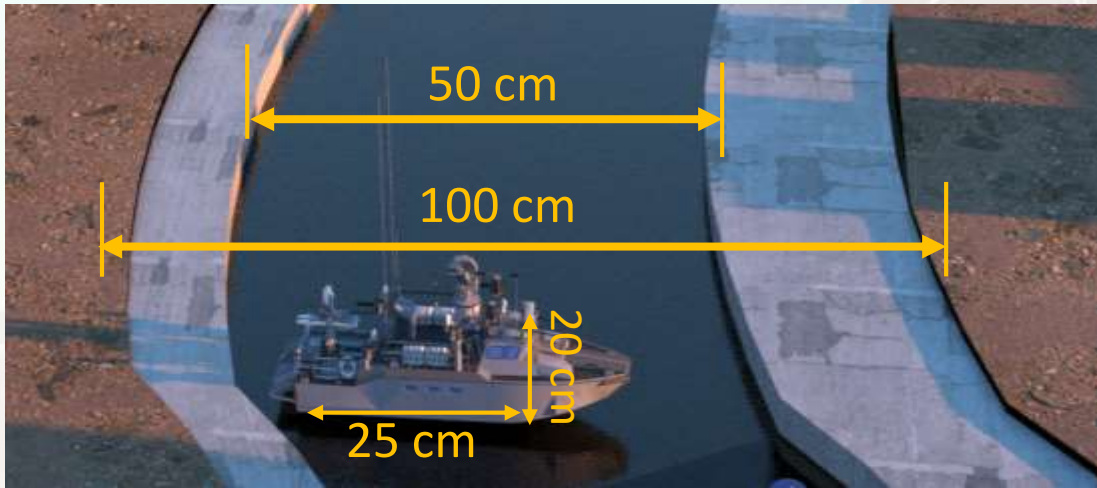


- ❖ The Fortified Bunker is a static target.
- ❖ You gain **3 points** for each time you score in the fortified bunker successfully.

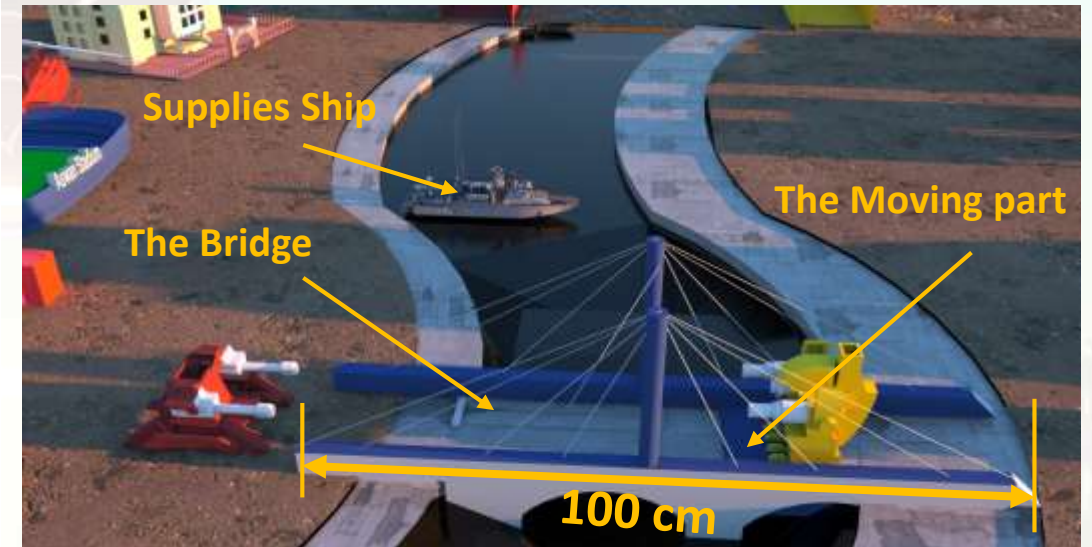




## 5- THE SUPPLIES SHIP



- ❖ The Ship is a moving target for a distance of **1 meter**.
- ❖ Only **one team** can shoot this target.
- ❖ The team that scores in the ship first gains **6 points**.



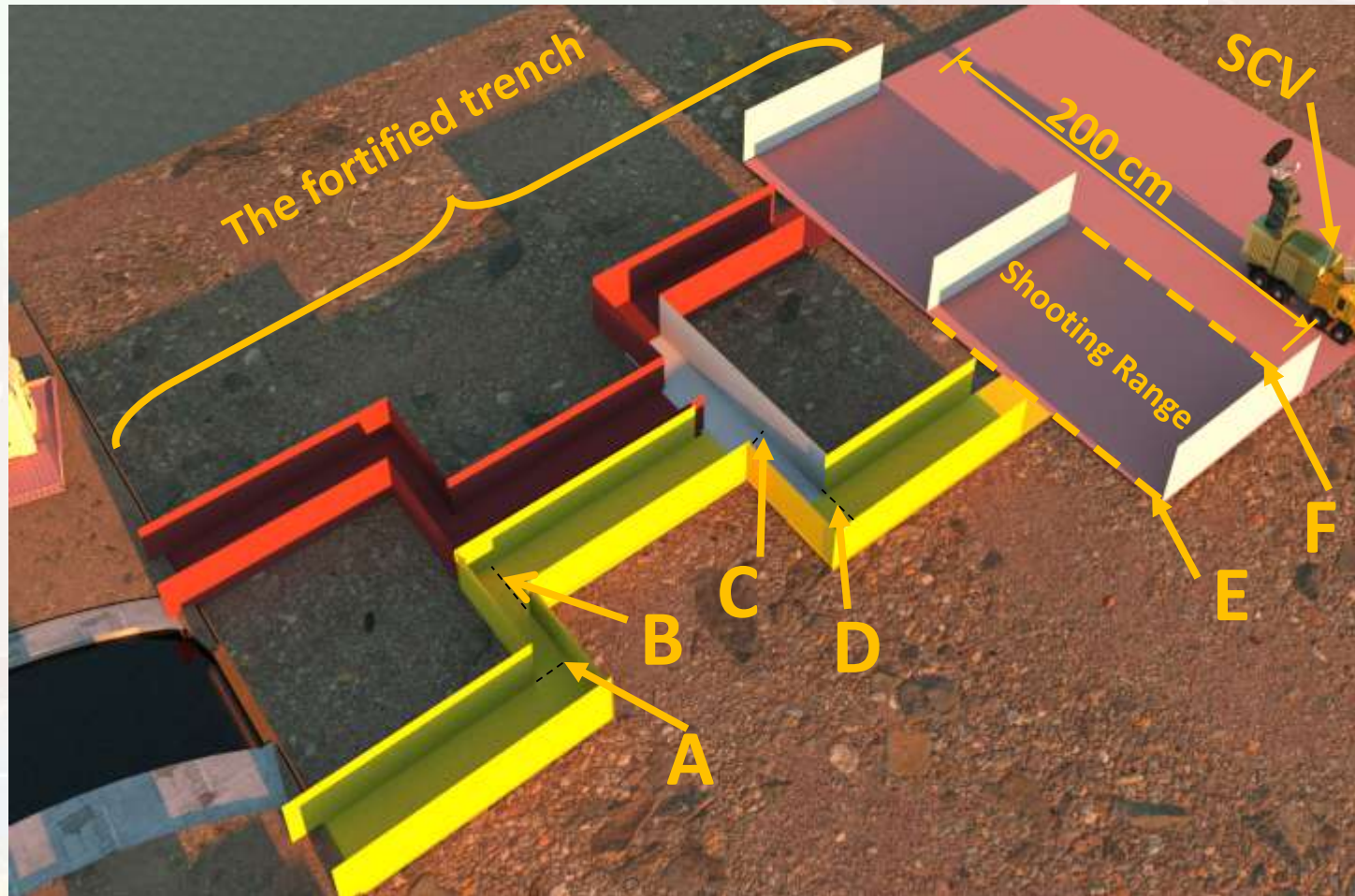
- ❖ You can only shoot the Ship if your robot is on the **moving part** of the bridge.
- ❖ The **moving part** also moves for a distance of **1 meter** like the ship.
- ❖ You can stay only for **15 second** on the moving bridge, if you can't score in this time period, you should get down from the bridge before shooting again.





## 2- AUTOMATIC CONTROL STAGE

### THE SPYING COMMUNICATION VEHICLE



- ❖ As your robot start the automatic phase you cant score in the manual stage again.
- ❖ You gain **2 points** for passing each check point in the Fortified Trench (**A**, **B**, **C**, **D** and **E**).
- ❖ You have to shoot the **Spying communication vehicle (SCV)** while you are in the **shooting range** (between lines E and F).
- ❖ The **SCV** is a moving target for a distance of **2 meter** .
- ❖ The team that scores in the **SCV** first gains **12 points**, While the late team gains **8 points** only for this shoot.



- 
- An aerial view of a LEGO city with a river and a bridge. A yellow arc indicates a distance of 50 cm from the left bank to the bridge, and 40 cm from the bridge to the right bank. Labels "Your Side" and "Enemy's side" are present.



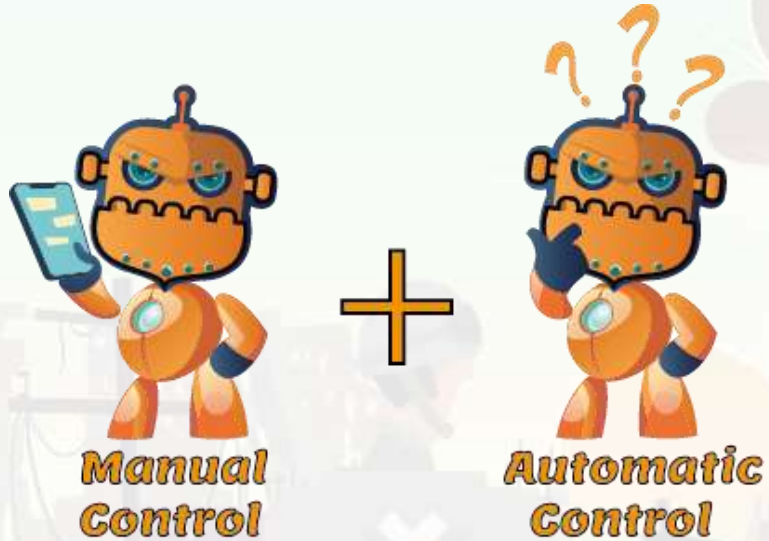
# SCORING SHEET

	Tasks	Point for each time	Maximum allowed scoring times
1	Loading balls in the robot.	1	25 times for each robot
2	Scoring in the Bunker.	2	4 times for each robot
3	Scoring in the moving Tank.	3	4 times for each robot
4	Scoring in the moving Helicopter.	4	4 times for each robot
5	Scoring in the fortified Bunker.	3	4 times for each robot
6	Scoring in the Supplies Ship.	6	1 time for only one robot
7	<b>Shooting the robot of the other team.</b>	<b>Take 5 points from the enemy's score.</b>	<b>You can shoot the enemy robot any time, except on the Bridge.</b>
8	Passing check points in the Fortified Trench.	2	5 check pints (A, B, C, D, E)
9	Scoring in the (SCV).	12 for the first team 8 for the second team	1 time for each robot





## ❖ ROBOT SPECIFICATIONS :-



- Each robot will be controlled manually and automatically.
- The robot dimensions must not exceed 30cm \* 30cm \* 30cm.
- The weight of the robot must not exceed 3 Kg.



## ❖ GENERAL RULES

- It's not allowed to control the robot through wires, Only wireless communication is allowed.
- After finishing the manual part the competitor must handle the controlling device to the judge and lets the robot run automatically.
- The competition is divided into rounds. Two teams will compete in each round. The winner goes to the next league.
- Only one of the team members is allowed to step into the arena to control the robot.
- The designs of the robot and the code must be sent to APEL before **48 hours** of the competition.
- You're not allowed to touch the robot at any part of the race.
- If your robot crashes in any wall you will lose 1 point.
- Only organisers are allowed to touch your robot during the game.



## ❖ PARTICIPATION:-



➤ Participation in the competition is available for all ages and specialties.

➤ Each team consist of 1 to 5 of students.



➤ The participation is totally **Free**, and there is an **accommodation** for maximum **2** team members from outside Aswan.



➤ **Prizes and awarding:-  
up to 10,000 EGP**



➤ For participation, please visit this link: <https://ieee.aswu.edu.eg/uea/>

