



RW 2023
Robotized World
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General Guide Book



1. INTRODUCTION of RW 2023

RW 2023 – National Level Robotics Competition organized by IBA The Robotized World in Vadodara where students of age group 6 to 9 years & 10 to 15 years from all over India will participate and compete with each other.

Theme of Competition: Save Energy & Save Future

The RW 2023 track is divided into 9 zones. Each zone is having one task to be performed by the robot with limited time.

2. Participation Requirement:

- All the Robotics Enthusiast kids are allowed to participate with age category 6-9 years and 10-15 years from all over India.
- Participants will be registered in one of the following categories:
 - Junior Category: 6-9 years
 - Senior Category: 10-15 years

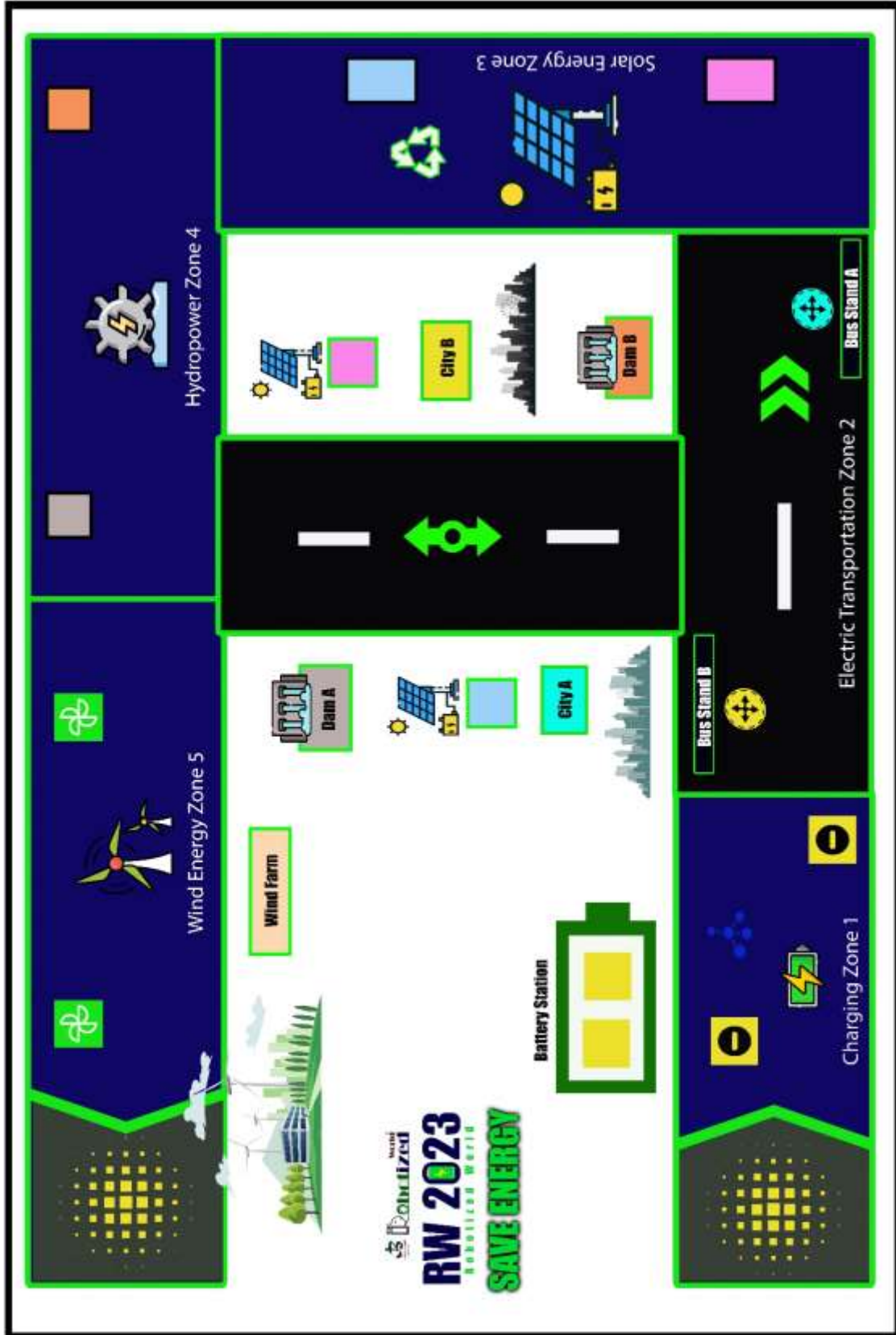
3. Details of Track:

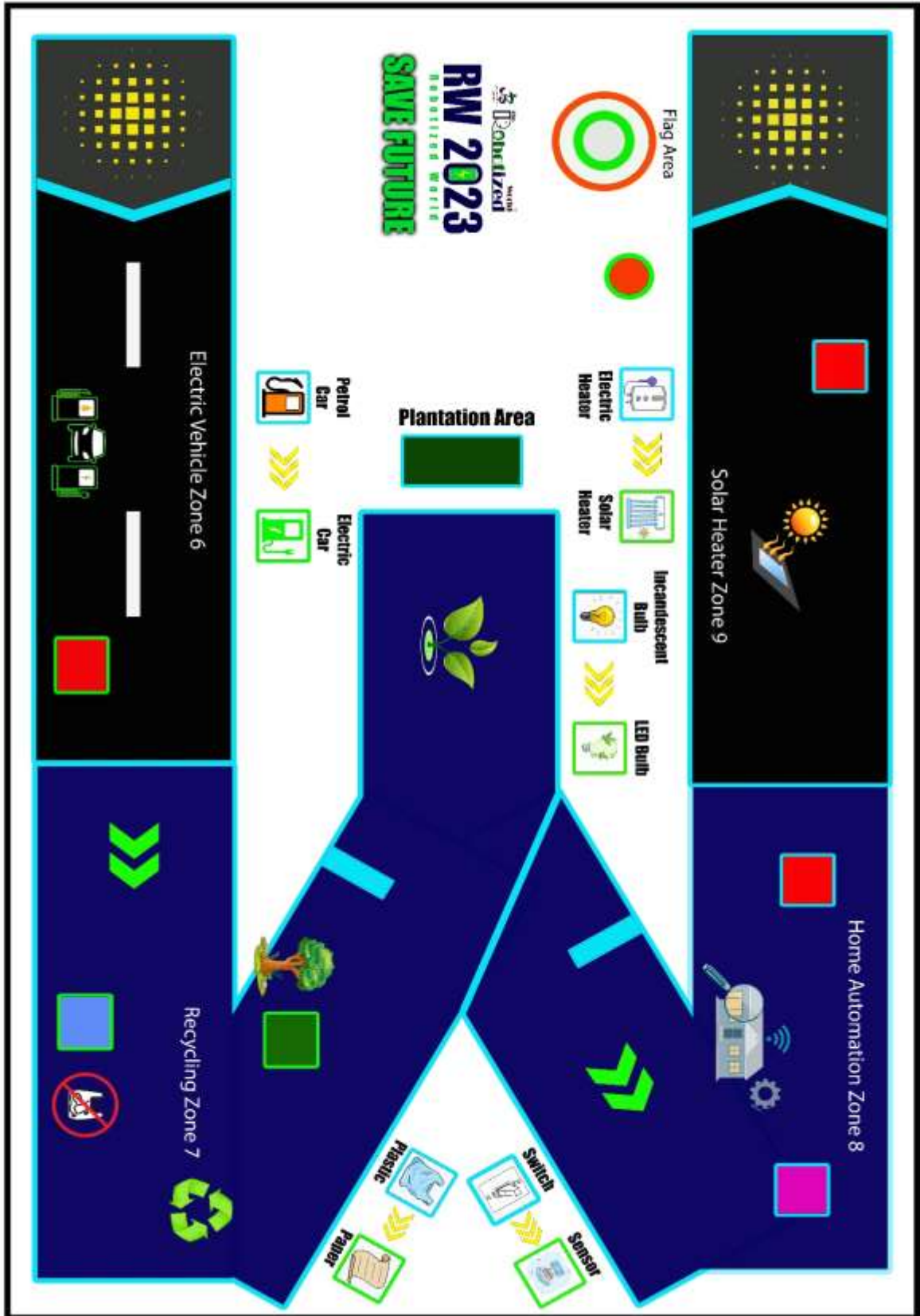
3.1 Track is divided into two parts. Track 1: “Save Energy” & Track 2: “Save Future”

Save Energy is having total 5 zones. Each zone is having one task related to Energy, which Robot needs to complete.

Save Future is having total 4 zones. Each zone is having one task related the activity which help us to save the future.

Both Tracks are having total 9 Zones. Each Zone is having specific task to do and opportunity to earn the points. Participant who completes the track with max points in minimum time will be the winner of the competition.







4. Zones of Track

Zones	Descriptions
Charging Zone 1	Here Robot needs to collect the battery and charge the Robot Battery Station by placing the battery inside.
Electric Transportation Zone 2	Here E-Robot needs to transport the passenger of Bus Stand A to City A and Bus Stand B to City B
Solar Energy Zone 3	Here Robot needs to generate the Electricity for City A & B using Solar panel by shifting the Solar panel from the Zone 3 to Solar Panel Location near the City A&B
Hydropower Zone 4	Here Robot needs to generate electricity from River Dam by placing the turbine in the River A & B for City A & B
Wind Power Zone 5	Here Robot needs to place the Wind Mills in Solar Farm to generate Electricity.
Electric Vehicle Zone 6	Here Robot needs to replace the all the petrol vehicle by Electric Vehicle. Petrol vehicle are place on the track and Electric Vehicle is place in the area of Electric Vehicle. Robot have to take the Petrol vehicle and place it in the petrol vehicle area and Pick the E-Vehicle and place it inplace of petrol vehicle on the road.
Recycling Zone 7	Here we have two tasks. One is recycling the Plastic to paper. And 2 nd is Tree Plantation. In 1 st task robot needs to replace the place bags to paper bags. Plastic bag is placed on the track that we need to place to Plastic bag area. As per place that plastic bag there, it will convert that plastic into paper bag. That paper bag we have to take and place it on the track where plastic bag was there. In 2 nd task robot needs to plant the tree placed on the track to plantation area.
Home Automation Zone 8	Here in Home Automation Zone, we need to replace the old incandescent lamp with LED bulb and Normal Hand Operated Switch to Sensor based Switches to Save the Energy. On the Track Incandescent lamp is placed Robot needs to place in the replacement area and LED



	<p>Lamp from replacement area we need to place on the track where old incandescent lamp was placed. And also remove the Switch placed on the track and place it in the replacement area and take the sensor-based switch from the replacement area and place it where switch was placed on the track before.</p>
<p>Solar Heater Zone 9</p>	<p>In this Zone we have to replace the Electric Heater to Solar Heater to Save the energy. So, we have to shift the Electric Heater placed on the track to replacement area and take the Solar Heater from replacement area to the track where Electric Heater was placed before.</p>





5. Technical Requirement of Robot:

5.1 Technical Requirement for Materials used on Robot making

- **For 10-15 years category: All the equipment's of Robot must be used from the list of materials given in the RW 2023 Robotics Kit List**
- No ready-made Kit or Lego Kit or MakeX kit is allowed.
- **For 6-9 years Category, Avishkaar Brand kit is allowed. No other kit is allowed for this age group**

5.2 General Technical Requirement:

When Participant is designing the Robot, he/she needs to take care of following points:

- Dangerous high-power equipment is not allowed to be used by the participant during the competition and the preparation of the competition.
- If robot is using energy storage equipment (spring, etc.). One should ensure safety in the process of using it
- The structure and parts of the robot that may cause potential injury to personnel in the process of clamping, handling, etc. should be provided with safety protection.
- Robots should not pursue the destruction of the site in the process of clamping and handling
- Robots are not allowed to use flammable gases, parts with potential fire risk, hydraulic components, mercury-containing components, exposed hazardous materials, unsafe counterweights, design that may cause entanglement and competition delays, sharp edges, materials containing liquids or gelatinous substances and any parts that may conduct electrical current from the robot to the arena.
- The robot's safety will be thoroughly checked during the inspection.

5.3 Number of the Robot

- Only one robot per participant is allowed to compete in the competition. Any kind of replacement of the robot is not allowed after inspection.
- Only replacement of defected parts is allowed. (Such as wheels, motor, controller or sensors)

5.4 Size of the Robot

- Normal Size of Robot should be under Length – 300mm, Width – 300mm & Height – 400mm
- Normal Size means While placing the Robot in the box of dimensions Length – 300mm, Width – 300mm & Height – 400mm it should fit inside the box
- Max Size of Robot should be under Length – 500mm, Width – 500mm & Height – 500mm
- The maximum size means that the size of the robot must not exceed the limit at any time in any stage of the competition.



5.5 Weight of the Robot

- Weight of the Robot refer to the net weight of the robot at any time during the competition – Weight of the Robot must be less than 5kgs

5.6 Robot's Safety

- The design and construction of robot by the participant should meet the technical requirements
- The referee has the right to reject dangerous robots from entering the arena for competition

5.7 Participants Safety

- The Participant should pay attention to safety when using dangerous tool (screwdrivers, sharp knives) and must use under the guide of their guardians.
- During the competition, participant should wear goggles, long hair should be tied up, participants are prohibited from wearing slippers into the competition arena.





6. Awards:

- Winner awards for Junior and Senior Category.
 - Champion
 - 1st Runner up & 2nd Runner up
- Best Bot Design Award
 - Each Robot design will be examined and best Robot design with best creativity will be selected as winner of Best Bot Design Award
- Most Socio-Popular Award
 - Prepare a video of 1 minute to 5 minutes (maximum 100 MB), showcasing participant readiness, creativity, preparing for challenges, or anything to show passion to participate in RW 2023. Share the video by 31st Oct 2023 either on email at info@ibacademy.in or on WhatsApp at +919510268685 (as google drive link) mentioning Your Name, Mobile no. and City Name. All videos will be uploaded on IBA The Robotized World YouTube channel. The top 2 Maximum views will have special recognition at the Championship

7. Points to be taken care by all the participants and parents:

1. The decorum of the Competition must be maintained by the students
2. Participants should not get into any argument related to event.
3. Misbehavior and using abusive language will not be encouraged and referees have all right to disqualify the participant from particular match.
4. Parents are allowed to view the respective matches of the participants from the distance but they should not interfere/make noise during the competition
5. In case of any misconduct by parents with officials, they will be asked to leave the competition area.
6. Parents inside the competition area should not make any disturbance leading to any inconvenience to any other participant. In that case, officials may ask parents to move out of the competition
7. No instructions can be passed to participants from parents during the competition rounds. In such case, participants will be disqualified without any warning from that match.
8. If any unexpected thing happens then referee's decision will be the final decision in that case.
9. RW 2023 Management team has right to change the rules and regulation for the betterment of the competition. And all the updates regarding any change will be shared with all the participants.

8. Copyright Declaration:

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RW 2023 Robotics Kit List

RW 2023 Robotics Kit Materials allowed for 10-15 years kids

Sr. No.	Material Name
1	Microcontroller - Arduino Uno, Nano or Mega
2	Servo Motor - Servo SG 90, Pro MG995
3	Motor Driver Circuit - L298 or L293
4	Batteries: 12V or 9V or 5V (should not be more than 12V) Chargeable or non-chargeable
5	Chassis – Metal or Fiber or Plastic body with dimension less than 30cm*30cm*40cm
6	DC Gear Motor – 0 to 300 rpm motors (Any motor)
7	Castor Wheel – any type as per Chassis taken
8	Wheel – As per the Motor Shaft any type can be selected
9	For Wireless communication: Bluetooth Module HC-05, any module of ESP Wi-Fi or RF modules

Participants need to use the materials as per the list given above. In the above list, whatever variant are given participants can make their model from that only. Other than this, basic materials like Breadboard, Jumper wires, buzzer, LEDs, mechanical and electronics tools like wire cutter or multimeter can be used of any materials and Company. Structure of the Robot can be made of any materials like wood, plastic or iron or steel.

RW 2023 Robotics Kit Materials allowed for 6-9 years kids

For 6-9 category, participants need to use “Avishkaar” Kit.