

Sabre

presents



2016
quark
A COSMIC ODYSSEY

Events Rulebook



BITS Pilani
K K Birla Goa Campus

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Events under this Panel:

- **Quest**
- **Bluechip Beatdown**
- **Intellect**
- **Wallstreet**
- **Youth Parliament**

Quest

Quest, one of the most successful Corporate Events in Q'15, will be organized yet again in Q'16. This event provides young thinkers and entrepreneurs an excellent platform to pitch in their ideas before the corporate world and get an opportunity to win an incubation or starting push to their innovation.

Event Structure:

Round 1:

This round tests the creativity, innovation and originality of applicants in developing a new product for an audience of their choice in the sectors provided by CEL. Feasibility of the product is an important criterion which applicants should consider before sending in their entries. A write up describing the details of the product designed by applicants, their chosen sector and target customer group has to be submitted before January 20, 2016. The choices of sectors for applicants are –

- Couture industry
- Sports industry
- Mobile applications industry
- Stationary
- Websites
- Robotics
- Spaceships and Aircrafts
- Travel and Hotel

Quest

- Sports & Gym equipments
- Medicines & Hospitals
- Educational institutes
- Press and Publications
- Satellites and network
- Petrochemicals
- Electrical and Electronics appliances
- Entertainment channels and TV shows
- Renewable energy

You are supposed to come up with a product in any one of the above industries and also decide your consumer base (for example if the industry given would have been on websites, possible product could be online marriage partner search website and users could be single people in the age range of 25 yrs to 35 yrs).

Note: Mentors from leading incubators and accelerators from India will be allotted to all the selected teams from round 1. Mentors will work with the teams and guide them for the final Elevator pitch round which will be held during Quark.

Quest

Round 2:

This round of Quest will be divided into 2 phases. Winners will be declared at the end of second phase only. No elimination will be done after the first phase. The ultimate goal of this round is to make product Z or Z* or Z** or Z*** at the end of phase 2. Each of these products has to go through all the 3 units described below before it can be sold to CEL.

PHASE 1: Bidding phase

Each team will be given an initial capital of Rs 8 crores. The 3 units given below are further divided into 2 sub-units each. In this round teams have to bid for the sub-units provided below. If a team owns a particular sub-unit then it will get the advantage of having that unit function at minimum cost. Teams can bid for any number of sub-units provided they have capital left (teams can bid up to a total of 4 crores only i.e 50% of initial 8 crores for this round). They also have to keep in mind that further capital will be required in 2nd phase so preservation of capital should be done accordingly. No extra capital will be provided at end of phase 1.

Quest

Each sub-unit will be open for bidding for a duration of 1 minute. If at end of 1 minute the sub-unit is not sold then closed bidding will be done. Bidding units are (figures provided are minimum prices at which bidding for those units start) –

Production units

High quality production – 1.5 crores

Low quality production – 1 crore

Staff hiring service

Skilled – 1.5 crores

Unskilled – 1 crore

Publicity

Print media and Television ads – 1.5 crores

Social media – 1 crore

Bidding has to be done in steps of 10 lakhs only. Team which does not buy any sub-unit in this phase has to pay a surplus tax of Rs 1.5 crores to CEL at the end of phase 1.

Quest

PHASE 2: Product making and selling

In this phase teams have to make product Z or Z* or Z** or Z*** by investing in any one of the combinations of sub-units given below.

Z-> low quality production + unskilled labour + social media

Z*-> low quality production + unskilled labour + print media OR Low quality production + skilled labour + social media OR High quality production + unskilled labour + social media

Z** -> Low quality production + skilled labour + print media OR High quality production + skilled labour + social media OR High quality production + unskilled labour + print media

Z*** -> high quality production + skilled labour + print media

Quest

After selling products to CEL, teams will get that much more capital depending on number of products they sell. Then again the same process of negotiating and selling will continue. So account of each team will be updated after every 10 minutes in following way ->

$$(\text{number of products sold to CEL} \times \text{selling price}) + (\text{number of sub-unit functions sold to other team} \times \text{negotiated price between teams}) - (\text{number of sub-unit functions sold to other team} \times \text{cost price for that function}) - (\text{number of sub-unit functions bought from other team} \times \text{negotiated price between teams})$$

Final evaluation:

The total capital at the end of half hour for each team will be calculated to decide the winner

Quest

Elevator Pitch - The final round

An **elevator pitch** is a short summary used to quickly and simply define a profession, product, service, organization, or event and its value proposition. The name "elevator pitch" reflects the idea that it should be possible to deliver the summary in the time span of an elevator ride, or approximately thirty seconds to two minutes. In this round, the teams will be given a short time interval "60 secs.", in which they have to pitch their idea. The panel judges will declare the winner for this at the end of this round on the basis of the pitching skills and convincing power.

The winner for the complete event will be the team which has highest total score when the scores of all the rounds are added.

Bluechip Beatdown

Bluechip Beatdown is 'the Salesman's event' for all entrepreneurs who think they can sell air to people. It tests marketing skills and selling tactics of the participants. From pitching hypothetical products to selling real products to general public, it gives the participants a hands-on experience of the market as a seller.

Round 1:

In this round, each team will be given a hypothetical product to sell. Each team has to present their marketing strategy to the panel of judges. The selection of the product will be random, from a bowl with paper chits in it. The key factors to be kept in mind are the target audience, cost efficiency, creativity and key investors. Teams will be given a total of 20 minutes, 5 minutes to come up with a marketing strategy, 10 minutes to present it and last 5 minutes will be saved for counter questions by judges. This shall be followed by a session on marketing strategies by a professional. The teams shortlisted in this round will proceed to Round 2. The session in marketing strategies shall enhance your marketing skills which shall help you in Round 2.

Bluechip Beatdown

Round 2:

In this round, each selected team have to sell the products on the streets of Vasco/Madgaon. The teams have to market their products on the street in order to get maximum profit. Each team will get 100 Rs. to buy these products. Teams can buy products of whatever amount ranging from minimum 50 to maximum 100. After every team purchases the product, the remaining products will be auctioned. The money for buying the product in the auction shall be paid after the sale of initial products of the same amount. If any product is left , it must be returned with 90% of initial value. Each team will be given exactly 3 hour to sell product.

Team Specifications: 1-3 members

Bluechip Beatdown

Detailed Marking System:

Marking system is relative for both the rounds this year. Both the rounds have equal weightage.

It goes like this.

Round 1:

Every team will get a hypothetical product to sell. They have to present their strategy to panel of judges and then judges will give points depending upon different qualities of teams.

Initially, each team will get points out of 50. At the end of this round, these will be normalised in this way.

Normalised points= (points scored by the team / highest points scored) * 100

Round 2:

In this round participating team will go to Vasco and sell the real products whichever team will earn maximum profit will be given 100 points and all the other teams will be given points relative to that team's amount. For example, if any other team make a profit of X rupees then they will get $(X / \text{highest amount}) * 100$ points.

Total points scored in round 1 and round 2 by teams will be used to calculate rank.

*Any act of misbehave and cheat will lead to disqualification from the competition.

Intellect

Intellect is a case study event which would test managerial skills and critical thinking of the participants. The participants will be provide a case study situation to tackle; an opportunity to prove their crisis management instincts, and finance and accounting skills on the platform of Quark 2016.

The problem statement of this event, Intellect shall be a social cause to promote social entrepreneurship.

Round 1:

This will be the filtering round. A problem statement will be given and the participants will have to generate a social entrepreneurial model through which the problem can be combated in a profitable manner. A report giving a briefing of the idea and answering the following questions should be submitted by January 20, 2016.

- What are the target customer segments?
- What are the key activities going to be?
- What are the possible revenue streams?
- Who are the key partners going to be?
- What are the risks involved?
- Is the business going to be sustainable? Explain.
- What are the key resources involved going to be?
- Can the business be expanded to combat other problems?

Intellect

Depending on the answers to the above questions candidates will be shortlisted for the second round. There will be no specific limit to the number of candidates that will be selected for the second round.

The final round will take place on-fest and the details of this round will be updated on the website.

Wallstreet Revolution

Wallstreet Revolution is the game to test your marketing skills, you don't just offer, you calculate your profit and your loss, and keep a track of your remaining goods. You are given gold, you are given money, buy and sell in the right way and make maximum profit in the end to mark your victory.

Event Structure:

- The events consists of 3 different games that will be played on all the three games
- 8-10 teams participate in one game
- Each team will consist of 2-4 participants
- Each game consists of 10 round of 2.5 minutes each.
- Half the no. of teams are given 2000 gold points and the rest are given -2000 gold points. Each gold point being worth Rs 200
- The teams will be allowed to transact their gold point between a price of Rs180 to Rs 220
- At the end of 10 rounds all teams must bring their total no of gold points to 0.
- The team with the maximum profit will the winner.

Youth Parliament

Entrepreneurs are leaders first. Keeping this in mind, we present to you Youth Parliament, a platform to put to test your leadership qualities, strategizing and decision-making skills, team work and your way of keeping cool at unfriendly situations.

During the event, participants organize a parliament where debates, discussions and law making takes place.

1. Seating of the Parliamentary Members

- The lay-out of the Chamber of the Youth Parliament should resemble as far as possible the lay-out of the Chamber of Lok Sabha.
- Ruling party to sit on the right side of the chair.
- Opposition and other alliances to sit on the left side of the chair
- Both sides more or less equal in no.

Youth Parliament

2. STATEMENTS FROM THE HOUSE

- After establishing quorum, the speaker will ask for statements from the members. A total of 8 members (4 each from government and opposition) are given time on the floor to make statements. The leader of the house is the default first speaker and the leader of opposition is the default last speaker. However they may pass on their chance to speak to whoever they wish to.
- The other 6 speakers are chosen by the discretion of the chair when the MPs are asked for statements.
- The maximum time allowed to make statements is two minutes.
- Agendas for discussion hour (explained in the next section) are allowed to be sent once first two speakers have given their statements. Note: All the points (described later) including the points of information are allowed during this time.

Youth Parliament

3. DISCUSSION HOUR

- A discussion hour is the time allotted (maximum half hours) for the discussion on a sub-agenda which the members feel should be discussed in front of the house. The total time of all the discussion shall be an hour.
- All agendas for discussion hour are supposed to be sent prior the commencement of discussion hour
- Agendas for discussion hour are allowed to be sent once first two speakers have given their opening statements.
- The process of putting up agendas for a discussion is in writing and follows the given format: Name of the constituency Topic of the discussion Total Duration (not to exceed 30 minutes) Individual Speaker Time (not to exceed 60 seconds)
- The speaker shall keep the agendas in chronological order and first put the agenda to vote which is received first on the dias.
- The chairperson may withdraw any agenda he/she feels has no relation to the agenda. However he/she has to notify the particular MP of the same on which the MP is allowed to send a chit explaining why the agenda should not be withdrawn.
- On receiving the agenda, the speaker will ask for seconds. An agenda requires 1/5th support of the house to enable it to be put to vote.
- On receiving required seconds the chairperson will put the agenda to vote and the result is decided by a simple majority of placard vote
- An extension to a discussion hour may be obtained if the total time does not exceed 30 minutes. Note: All points except points of information are allowed in the discussion hour.

Youth Parliament

4. QUESTION HOUR

- It is the one hour after the discussion hour where the members of the house are free to ask questions to each other on matters pertaining to agenda or on a national emergency provided that such a question is sent in writing to the said member via the speaker and with his due approval before the commencement of question hour.
- The question has been defined as an instrument by which a member can elicit information on any matter of public importance.
- Starred Questions: Meant for oral answers
- Unstarred Questions: Meant for written answers
- The sender MP is allowed to ask a supplementary question, with the permission of the Chairperson, after the reply is obtained from the Minister concerned for starred questions.
- The chit on which the question is sent has to be properly marked/written as Starred or Unstarred to be in proper format
- Any Starred question may be changed to unstarred on the discretion of the chair. The chair shall notify the sender of the same.
- Answers to Unstarred questions are mandatory and have to be sent to the recipient MP via the chairperson before the end of question hour.

Youth Parliament

- Not more than two starred questions are allowed to be asked to a member. In case a particular MP has already received his quota of two starred questions then the chairperson shall change the further incoming starred questions as unstarred and notify the sender MP of the same.
- Similarly not more than twenty (20) unstarred questions are allowed to be asked to a member. In case 20 unstarred questions have already been sent to a particular MP the chairperson shall return the question to its sender.
- The maximum questions, starred or unstarred, a member is entitled to send is 10 per day. The right to ask a question is governed by the following conditions:-
 - It shall be clearly and precisely expressed and shall not be too general incapable of any specific answer or in the nature of a leading question
 - If it contains a statement, the member shall make himself responsible for the accuracy of the statement
 - It shall not contain arguments, inferences, ironical expressions, imputations, epithets or defamatory statements
 - It shall not ask for an expression of opinion or the solution of an abstract legal question or of a hypothetical proposition
 - It shall not ask as to the character or conduct of any person except in his official or public capacity

Youth Parliament

- It shall not ordinarily exceed 50 words
- It shall not relate to a matter which is not primarily the concern of the Government of India.
- It shall not reflect on the character or conduct of any person whose conduct can only be challenged on a substantive motion
- It shall not make or imply a charge of a personal character.
- It shall not raise questions of policy too large to be dealt with within the limits of an answer to a question
- It shall not repeat in substance questions already answered or to which an answer has been refused
- It shall not ask for information on trivial matters
- It shall not ordinarily ask for information on matters of past history
- It shall not raise matters under the control of bodies or persons not primarily responsible to the Government of India
- It shall not ask or information on matter which is under adjudication by a court of law having jurisdiction in any part of India

The Speaker shall decide whether a question, or a part thereof, is or is not admissible under these rules and may disallow any question, or a part thereof, when in his opinion it is an abuse of the right of questioning or is calculated to obstruct or prejudicially affect the procedure of the House or is in contravention of these rules. Note: All points except points of information are allowed in the question hour

Youth Parliament

5. Zero Hour

- It starts immediately after the Question Hour.
 - During the Zero Hour any question pertaining to agenda or a national emergency can be raised by a member without any prior written request.
 - The Zero Hour can extend to any period of time depending upon the Speaker's direction. (1~1.5 hours)
 - The Government is not obliged to answer any of the questions raised in the Zero Hour. However in the context of the debate it is highly expected from them to answer all the questions.
 - The chairperson shall choose the MPs on his discretion
- Note: All points except points of information are allowed in the zero hour

6. CALLING ATTENTION NOTICE

- The idea of Calling Attention Notice has originated in our country itself a combination of questions for answers with supplementary and brief comments on a matter of urgency and public importance.
- The calling attention notice has to be sent to in written to the chairperson who shall use the time between two procedural hours ie that is Discussion Hour and Question Hour or Question Hour & Question Hour and Zero Hour for the same. However the chairperson is allowed to allow calling attention notice at any time if the matter of emergency or has to be resolved urgently.

Youth Parliament

7. ADJOURNMENT MOTION (OPTIONAL)

- Any matter which is of urgent importance and which is so grave that it affects their interest and safety of the country can be raised through an adjournment motion. In order that the adjournment motion be admitted it must...
 1. Be related to a single specific issue,
 2. Be urgent, and
 3. Be of public importance.(Planning to introduce one in form of a natural tragedy)

8. NO-CONFIDENCE MOTION (OPTIONAL)

- There is an express constitutional provision which lays down that the Council of Ministers will be responsible to the Lok Sabha.
- In a parliamentary democracy it means that the Ministers hold their offices so long as they enjoy the confidence of the Lok Sabha. The moment the Lok Sabha expresses its no-confidence in the Ministry the Prime Minister and his/her Ministers have to leave. Thus the Prime Minister and his/her Council of Ministers are collectively responsible to the Lok Sabha.
- For the benefit of debate this motion shall not be allowed to be raised before the second day of youth parliament.
- The member who wishes to raise this particular motion shall take proper permission before raising this motion

Youth Parliament

- On receiving the agenda, the speaker will ask for support. For this motion to pass it shall require an affirmative vote of 40% members
- The Chairperson in this motion shall allow every question necessary to determine the decision of the House on the motion.
- The chairperson will allot specific time period for speeches and will allow as many speakers as possible in this particular motion.
- After the members have spoken on the motion, the Prime Minister gives a reply to the charges levelled against his/her government. The mover of the motion has the right to reply.
- When the chairperson feels there has been sufficient debate on the question he shall put forward the motion to vote.

(May be introduced for an incompetent team)

Youth Parliament

9. PRIVILEGE MOTION

- It is a motion raised by a Member of Parliament. He charges the Minister with committing a breach of the privilege of the House by withholding or distorting facts.
- The motion can be raised at any time in the parliament
- The Minister is given a chance to reply and the MP who has raised the motion is allowed to ask supplementary questions.

10. PRIVILEGES TO THE MPs

These privileges in the form of permission or points are allowed at all times when a speaker is not speaking or immediately after the speaker has finished speaking.

Point of Information is not allowed at certain times as mentioned above in relevant sections. Permission to raise a motion is only allowed at certain time periods as previously mentioned along with the motions

PERMISSION TO RAISE A MOTION A MP at any time can raise his/her placard and seek permission from the chair to raise a motion.

Youth Parliament

POINT OF INQUIRY Enquiry about parliamentary procedures and conduct to the chair

POINT OF ORDER This may be introduced in order to complain about improper parliamentary procedures; however the Chair may overrule the point. This can also be used in case of a factual error

RIGHT TO REPLY If a particular member present feels that a grave (or false) statement has been made by others towards that member, he/she may privilege the right of reply with the permission of the chair.

POINT OF PERSONAL PRIVILEGE This may be used in order to remove a personal discomfort.

POINT OF INFORMATION: This may be used to put up questions on a member's statement.

Youth Parliament

11. Consideration for Drawing up the Winners

Although the executive board shall have its own criteria of deciding they shall keep in view the following points while assessing the performances of speakers

- Marks *TOTAL 100+

- (i) Discipline and Decorum 10

- (ii) Observance of Parliamentary procedures 20

- (iii) Selection of Subjects for Questions and Quality of Answers thereto 20

- (iv) Selection of Subjects for Debates 10

- (v) Delivery or Quality of Speeches delivered, Standard of Debate 30

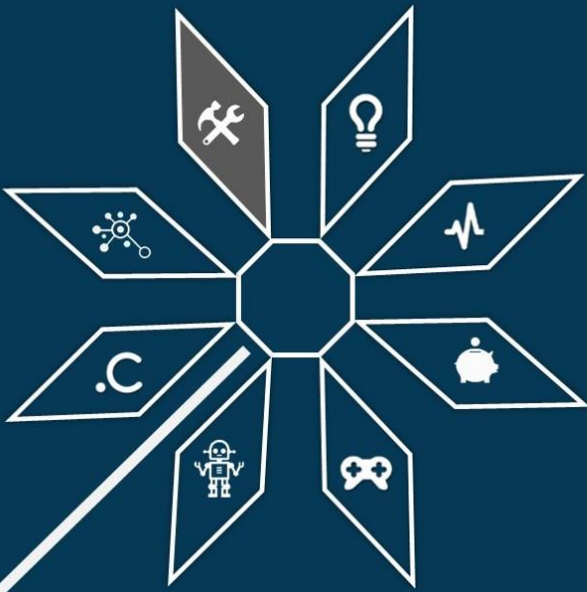
- (vi) General Assessment of the Performance as a whole 10

Youth Parliament

12. IMPORTANT POINTS TO BE KEPT IN MIND

1. Chair is to be addressed as “My Supreme Commander”
2. Laptops allowed.
3. No internet usage allowed inside the house.
4. Two most important parts of the list of business of a ‘Youth Parliament’ are the ‘Questions’ and the ‘Debate’ or ‘Discussion’. During Question Hour, the judges are likely to be impressed by quality of questions asked and the quality of replies given by the Ministers. During the Debate or Discussions, they particularly look for the standard of Debate and the quality of expression.
5. The participants should show utmost respect to the Chair. They should abide by the decisions of the Chair and should have faith in his impartiality and judgment.
6. The participants are encouraged to tap desks in agreement.

Note: This event is only for School Students.



DESIGN&BUILD PANEL

Events under this Panel:

- **Burnout**
- **Trailblazers**
- **Mortar Combat**
- **Contraption**
- **Création**

Burnout

Qualifying round:

Time Trial: This round will test the timing skill of the team.

Target: Each team is required to complete the base track in minimum time and will be provided with 3 chances to show their best timings.

Penalties: Restart can be taken at most twice with penalty in scores. Crossing the boundary of the track.

Judging criteria:

- This round will be for 25 points.
- Main areas of judging criteria will be speed and power of the vehicle.
- Timing for each checkpoint would be noted.(3-4 checkpoints).
- Bonus points for the winner.

Burnout

First Round: Rat Race

The format of this race would be a knockout. The track for the second round would be a racing circuit with a variety of features that will challenge the speed, control and robust prowess of the cars. Obstacle such as bridges, tunnels.

Target: There will be multiple laps in this circuit. There would be 8 checkpoints in each lap. If a team cannot complete a checkpoint then it has to start from the beginning.

Judging Criteria:

- This round will cost 50 points.
- Main areas of judgment will include driving, stability, drift accuracy etc.
- Elimination start from this round.
- No negative points, in fact bonus points to teams who complete the laps first in each cycle.

Burnout

Final Round: Speedomania

This is going to be the last and final round of this event. It is a racing circuit with a variety of features that will challenge the speed, control and robust prowess of the cars. The track would comprise of various features some of which are exclusive to this edition of this event.

Penalties: Obstacles need to be crossed otherwise one needs to start from the nearest checkpoint in order to cross. Restart can be taken at most twice with penalty in scores. Crossing the boundary of the track.

Judging criteria:

The round will consist of 100 points. Major breakers would carry higher percentage of points allotted in this round. Maximum number of attempts to cross any obstacle would be three. Negative points along with penalty of time would be given to teams who were unable to cross any obstacle.

Trailblazers

Round 1:

Maneuver your aircraft along the pre-determined flight path followed by a safe and smooth landing.

You can choose to perform any 4 (FOUR) the following maneuvers:

- | | |
|-----------------|------------------|
| 1. Stall Turn | 2. Outside Loop |
| 3. Inside Loop | 4. Immelman Turn |
| 5. Half Cuban 8 | 6. Split S Turn |

The flyer will have to call out before performing a stunt. Time of flight will be taken and will be used appropriately.

Bonus:

A Bonus credit will be awarded upon performing 'Low Pass'. This isn't compulsory. The flyer will have to call out before performing the stunt. This can be performed after Event 1, and time for this stunt will not be considered.

Trailblazers

Round 2:

Task 1

This task will ask for a payload (200-400gm) to be delivered at a specific location. The position of payload drop will have significant amount of points. Time will not be criterion in this case.

Task 2

A very simple flight path will be given to the participants. The flyer that goes through the entire flight path in the least amount of time gets the maximum credits for this task.

Time will be the only criterion for this task.

Points earned from Task 1 and Task 2 will be combined to decide the winner of Event 2.

Arena:

The arena consists of an open field of approximately 50m radius.

Team Specification:

A team may consist of a maximum of 5 members. Students from different educational institutes can form a team.

Trailblazers

General / Machine Specifications:

- An aircraft is defined as an object that has the four forces of flight, namely lift, drag, weight (gravity) and thrust due to propeller acting on it at any point of time.
- The plane should be capable of performing pitch and roll motions. Yaw motion is optional.
- The wingspan of the plane should not be more than 150 cm, while its length should be less than 150 cm.
- The plane may be hand-launched or may take-off from the ground. Use of any other launching mechanism is prohibited.
- Use of IC engines is strictly prohibited. Only electrical motors are allowed.
- Use of gyroscopes is not allowed.
- Participants must make all parts of the aircraft themselves. Usage of Ready-to-Fly (RTF) and Almost-Ready-to-Fly (ARF) kits is strictly prohibited. However, kits comprising of unassembled cut-pieces of Balsa wood are allowed. Use of readymade actuators/motors, remote controls and propellers is also allowed.
- Violation of any of these specifications will lead to instant disqualification.
- Decision of the Event Manager, Judges will be final and binding.

Mortar Combat

Qualifying Round:

Proper dimensions will be checked i.e. max weight, max pressure, max volume of combustion chamber, whether they have used the allowed fuel etc.

Round 1:

This time we will have different circles of different radii in place of concentric circles (last time). We will have balls (we will name them on the names of the planets matching this time Quark theme) varying from small to large sizes at increasing distance.

Marking scheme:

3 min will be given with unlimited shots. Those whose shots will be at larger distance will get more points.

Starting from 20, 30 so on. This round will basically test the range, accuracy and speed of the gun.

Mortar Combat

Round 2:

Okay now second round is a bit luck based (u will have to be highly accurate). We will have 5 rings (all of different colors) each for a team like in Olympics (or many if more than 5 teams qualify the 1st round). All teams will have to shoot simultaneously their respective rings.

Marking Scheme:

3 shots (unlimited time) will be given to each team. They will qualify if their ring (basically the ring will have some polythene covering which will burst if it had been shoot so we will get to know which team qualifies) had been shoot (no matter who shoots them that's why this round requires high accuracy).

Note: There may be modifications in the rounds.

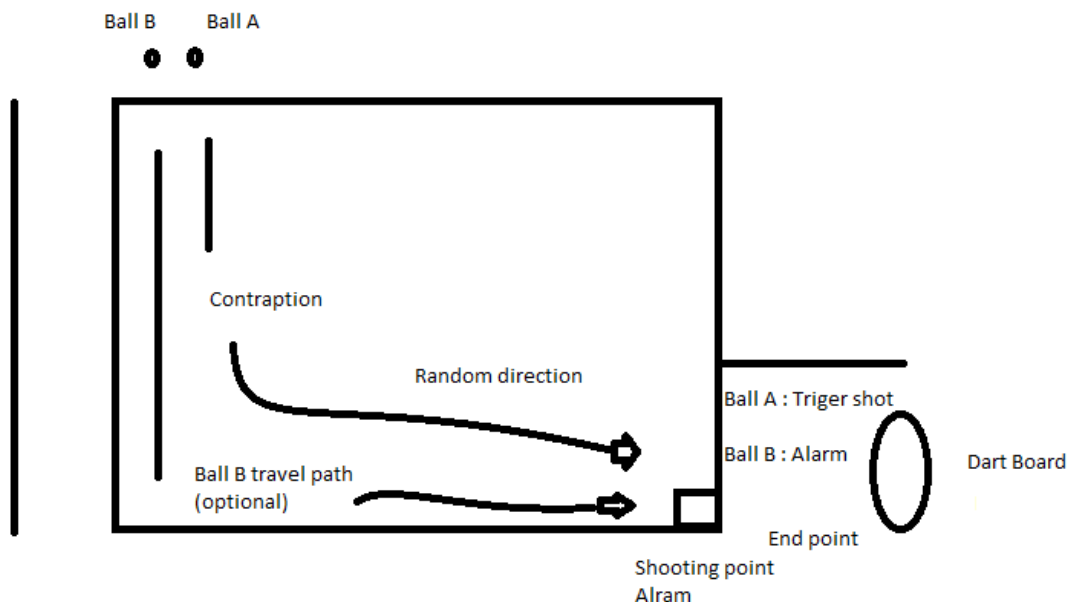
Contraption

Problem Statement:

You are required to enthrall the judges and the audience with your ability to perform the most simplest of actions with an infinite array of steps.

Compulsory Task:

Your aim is to shoot a dart at the dart board, as accurately as possible using a ball (say) A, or through steps driven by Ball A. This needs to be done within a time limit. You may use another ball say B as a timer for this (with Ball B itself going through a series of contraptions) OR you may use an alarm clock. Using Ball B will garner you extra points.



Contraption

Bonus Tasks:

Task 1: Open a Book

Task 2: Make a call on a cell phone

Task 3: Open up a banner having a social message

Judging Criteria:

- Given task should be completed.
- Each team will be given only one trial to complete the given task.
- If the team opts for a second attempt, 30% of the total points scored in the second attempt will be deducted.
- 50 Points will be given for each distinct energy conversion.
- Reverse energy conversions only in different style will be separately counted.
- For repeated energy conversions in different style For 1st repetition =20 points For 2nd and onwards =10 points
- 30 Points will be deducted for each interruption (hand touch).
- Secondary task is not compulsory. Its completion will reward the team, a bonus of 50points.
- Decision given by the judges will be final.
- Time taken for completion of task can also considered in case of tie.

Contraption

- Teams will be given only 3 hours prior to the competition to set up their Contraption at the venue.
- 10 points will be deducted for every extra 30 min, other than the stipulated time.
- Points for innovation and aesthetics will be decided by judges.

Point system:

- A - Number of energy conversions till the contraption stops.
- B - For completion of task.(compulsory)
- C - Number of hand touches.
- D - Points for innovation and aesthetics.
- E - For completion of secondary task. (Bonus tasks)
- RA - Number of repeated energy conversions
- F - Use of Ball B as a timer (100 points)

$$S = (A * 30 + B * 300 - C * 30 + D * 50 + E * 100 + RA1 * 20 + RA2 * 10) + F$$

(Note: The 4th task carries an extra of 50 points if the arrow is hit near the centre region)

Contraption

Rules and regulations:

- A maximum of 5 members are allowed in a team.
- A space of 8ft X 8ft will be provided to each team.
- The contraption must be safe to the satisfaction of the judges and coordinators.
- Judges' and the Coordinators decision shall be final and binding to all.
- Failing to start the contraption when asked to by the coordinators could lead to disqualification of the team for that trial.
- Use of explosives is not allowed.

Team Specifications :

- Minimum Members: 1
- Maximum Members: 4

Création

First round:

Categories:

We have three categories: Lantern, Guitar, and a wall clock.

Evaluation:

20% for sketch, 30% for 3D shape (for commands like extrude and revolve and all), 20% for finishing(holes, fillet, chamfer and all) and 30% for overall appearance. 4 entries to be finalized from each categories. So, 12 teams to make it through the final event.

Marking:

All entries will be graded on four points: sketching, 3D shape, finishing, and overall appearance. 20 marks for each. And, based on weightage, we will add them to get a cumulative score.

Création

Final Round:

Categories:

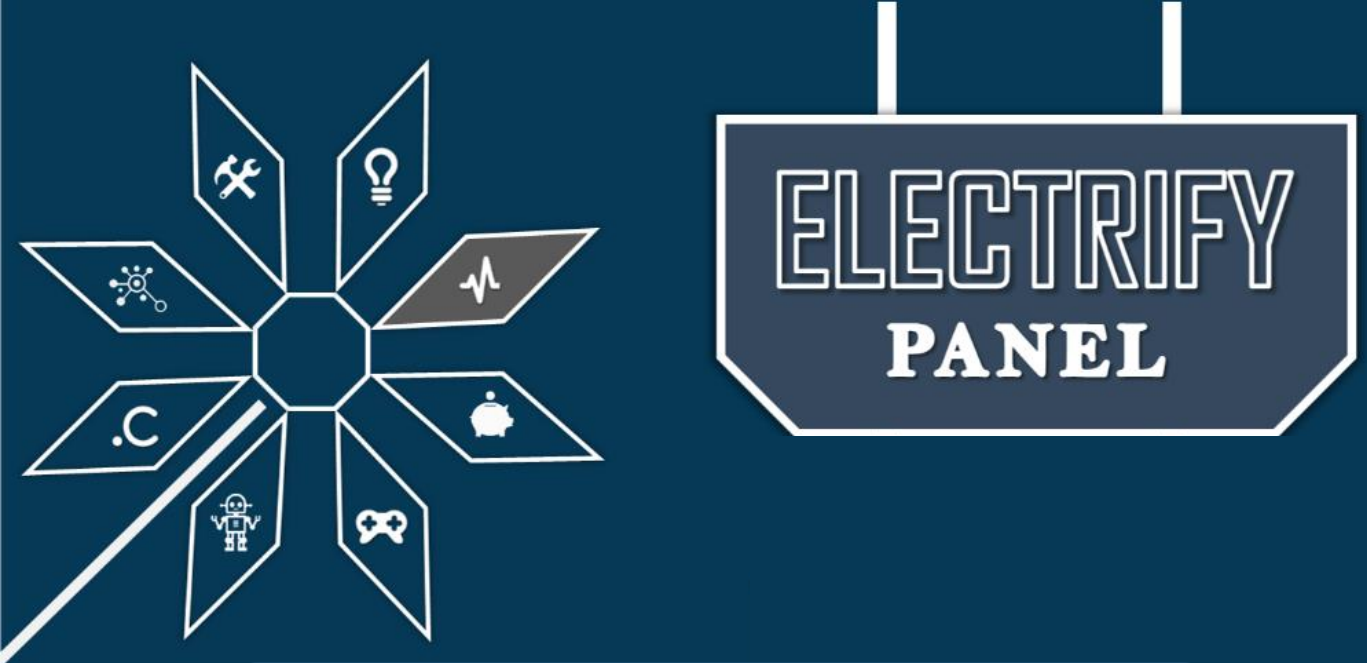
The teams will be required to design a UFO or any part of the space shuttle, keeping in mind the theme.

Evaluation:

10% for sketch, 30% for 3D shape (for commands like extrude and revolve and all), 30% for finishing(holes, fillet, chamfer and all) and 30% for overall appearance.

Marking:

All entries will be graded on four points: sketching, 3D shape, finishing, and overall appearance. 20 marks for each. And, based on weightage, we will add them to get a cumulative score.



Events under this Panel:

- **Analog Designing**
- **Arduino Open**
- **Digilogica**
- **Embition**
- **Matmania**

Analog Tussle

Enough of being Digitised, Think you know all about Analog, Well then take this test and find out.

Round 1:

Step to participate in Round 1

1. Create and account in [\(will be announced later\)](#) with a valid Email ID.
2. Verify the verification email we have sent you.
3. After verifying your account, self-enrol yourself for the course analog tussle.
4. Attempt the quiz Analog Tussle Round 1 after reading the instructions carefully.

Round 2:

A design problem corresponding to the theme would be uploaded on the website prior to the competition Quark 2015. Participants have to upload the solution set before a given Deadline. The participants who would clear the Second Round would be invited to Quark 2016 for the final Round and those who don't make it past, would be receiving a Tumse na ho paayega Meme.

Analog Tussle

Round 3:

The third round would comprise of participants being divided in two teams. Starwars and StarTrek. They would have to design the electronics schematics of a certain project within the prescribed time with a list of predefined equipment list and budget. These schematics will be uploaded on Proteus. The scores will be allotted on various measures (Cost effectiveness, Power, Durability). The team with maximum score would win.

Rules of Participation:

- Maximum number of people in one team is 3.
- The first round which is online quiz, will have 20 questions to be solved in 20 min. One team should take 1 quiz only.
- The abstracts that have to be submitted for round 2 must contain the solution to the design problem in clear, concrete and precise manner.
- While implementing the design, partial and erroneous outputs will not be accepted.

Arduino Open

This event is a battle of skill and technicality between teams who are expected to solve simple to complex problem statements based on their pre-existing knowledge of Arduino and interfacing with it.

This fun-filled event will consist of three rounds:

Round 1: Online round

This round is to be completed by participants after registration before coming to campus. Teams with highest scores will be shortlisted. The test will last for around 5 to 10 minutes. Questions will be based on Arduino logic and interfacing.

Round 2:

This round consists of participants solving fundamental problems on Arduino Programming. Beware the questions might be slightly tricky! Time is a constraint. Faster you solve the more you score!

Round 3:

The shortlisted teams from round 2 will be paired up , and each pair of teams will be provided with one practical problem , or circuit with flaw to solve . The team which comes up with the better solution faster qualifies to be paired up with other qualifiers. The final round between the top two teams decides the winner.

Arduino Open

Judging Criteria:

- Time
- Points
- Creativity
- Practicality
- Simplicity

Rules of Participation:

- Each team shall consist of minimum of 3 participants and maximum of 5.
- Participants are required to bring their own Arduino boards and laptops with Arduino IDE.
- All the hardware components required would be provided except the Arduino boards.
- Datasheets and pin diagrams would be provided if necessary.
- Participants may use the reference given in Arduino IDE under Menu->Reference.
- Any violation of rules or mishandling on equipment would lead to immediate disqualification.
- Decision of the Jury is FINAL and is to be abided by in any case.

Digilogica

Do you think that Digital Design is just a boring course just about gates and logic? Well you're in for a huge surprise! Welcome to the vast world of digital logic! Get ready to go beyond with counters, multiplexers, flip flops, encoders, decoders and much more and be prepared to be challenged at a whole new level!

General Rules:

- Each team shall consist of a maximum of 3 participants from the same college.
- Any sort of malpractice or mishandling of equipment will lead to immediate disqualification.
- Decision of jury is final and is to be abided by in any case.
- The above rules and judging criteria are subject to change based on the jurisdiction of the Event Managers.

Digilogica

Round 0: (Only for BITSians)

A Pre-Quark Wild Card event which gives the winners direct entry to the second round. You think it'll be easy? Brace yourself, Winter is Coming! Get ready for November, which will challenge you to a quick mock-compre, which will be a surprise event. So be prepared for any format, be it a Quiz where the top two teams qualify for Round 2, or, a round of Digital Circuit Designing to your Wild Card ticket to Round 2. The conventional way (Round 1) or this way, the Choice is Yours!

Notes:

- Beat others to be among the Top 2 teams, to qualify for Round 2.
- Series of challenging surprises await you!
- The judgement will be based on Perfection and Accuracy and will be easy to conquer. So expect high cutoffs!

Digilogica

Round 1:

A rapid series of mind puzzling MCQs with sand trickling down the hour-glass. How many of these basic digital electronics questions can you answer in the given time?

Notes:

- Teams would be short-listed for the next round on the basis of the quiz score.
- In case of a tie the completion time would be taken into account.
- This round is to be attempted online from any location convenient for the team.
- The questions are of variable weightage, and negative marking would be there.

Digilogica

Round 2:

Teams will have to design a combinational/sequential circuit as the solution to the given problem. A hardware implementation of the design has to be done on breadboard using the components provided. Datasheets and pin diagrams will be provided if necessary.

Notes:

- Correctness and efficiency of the design will be considered.
- Final and intermediate outputs of the hardware implementation will be observed and will be given high weightage.
- In case of a tie the time taken for the design and the implementation as well as the neatness of the circuit would be taken into consideration.
- This round will be carried out in the digital electronics lab at BITS Pilani K. K. Birla Goa Campus. All equipment- power supply, function generator, wire stripper, breadboard, etc. will be provided.

Digilogica

Round 3:

Just like the previous round, the teams have to design a digital circuit for the given problem. However, this one will be on a completely different level. Get ready for a serious dose of mind screwing! A simulation of the design on Lab center Proteus (version 7.10) will decide who will carry home the trophy.

Notes:

- Correctness and efficiency of the design will be considered
- Marks will be given only for final and intermediate outputs of the simulation.
- In case of a tie the time taken for the design and the implementation will be taken into consideration.
- Teams are advised to install and be well versed with the software beforehand.

Embition

This year's embition will put to test your creativity and technical skills. You will find that your spelling skills are just as important as your coding!

Round 1:

Each team will be given five words to spell. The teams that correctly spell the most will proceed further. In case of a tie, each team will be given another word to spell until someone misspells.

Round 2:

The teams will be given sentences with blank spaces. They will have to spell the word that fills the blank space. There will be a fixed number of questions based on how many teams have applied and how many proceed to round 2. The team that correctly spells the most words wins.

Eligibility and Team Structure:

- Any undergraduate or postgraduate student from a recognized college can register.
- Team strength must not exceed 3.

Matmania



The 4th generation Programming language and Interactive environment 'MATLAB' hackathon in QUARK 2016!
Don't have a firm grasp of the language? No worries! Links for the necessary tutorials are given below.

Matmania

Round 1:

It will be a General Quiz on MATLAB, covering syntax, features and data types.

Round 2:

It will be based on a simulation of a system in SIMULINK. Participants should know their way around the basics of SIMULINK.

Round 3:

It will be based on basic Signal Processing and Image Segmentation.

RULES

- You can have a team of maximum 3.
- The Qualifying teams will be those who have solved the problem correctly within the least time (In cast of a tie).
- In case of an alternate method to solve the problem it will be considered as long as the results are within the limits of error.



Events under this Panel:

- **Quark International Quiz**
- **Numb3rs**
- **Ganimatoonics**
- **E-Dorado**
- **Carpe Dictum**

Quark International Quiz

Regionals:

- The quiz shall be based on Science, Technology and Business
- Team composition: 1-2 members; Junior College and College students eligible for participation, with cross-college teams allowed
- Teams per college: Unlimited
- Registration: Online/on the spot
- The eliminations shall be held in standard written format with built-in tiebreakers
- Top six teams will proceed to an interactive final consisting of numerous rounds declared by the quizmaster on the spot
- Winner of the final proceeds to the National Final
- Quizmaster's decision is final and binding

Quark International Quiz

Finals:

- The quiz shall be based on Science, Technology and Business
- Team composition: 1-2 members; Junior College and College students eligible for participation, with cross-college teams allowed
- Teams per college: Unlimited
- Quiz will consist of an interactive final consisting of numerous rounds declared by the quizmaster on the spot.
- Quizmaster's decision is final and binding

Numb3rs

For all those who love solving problems of mathematical nature and like to wrestle with logic, **Numb3rs** is the event for them. This is a competition where the participants will be able to test their aptitude and logical reasoning skills. We guarantee you a few puzzling, numbing and frustrating hours of fun and mind-gasmic problem solving. Think you have it in you to be the best? Take part in the event and challenge yourselves.

Following is how the competition will proceed:

Round 1:

Individual Round. Only Top **40%** get through.

Round 2:

Team Round. Teams of two will be made. **Half** the teams will enter the final stage the rules of which will be announced at the time of the commencement of the final round.

Ganimatoonics

The quiz shall be based on the world of Games, Anime, Cartoons and Comics.

- Team composition: 1-3 members; Junior College and College students eligible for participation, with cross-college teams allowed
- There's no limit on the number of teams from one college.
- The eliminations shall be held in standard written format with built-in tiebreakers
- Top six teams will proceed to an interactive final consisting of numerous rounds declared by the quizmaster on the spot
- Quizmaster's decision is final and binding

E-Dorado

- The event shall be held online, on a general theme
- Team composition: Individual; participation is open to all
- The event will consist of a series of pictorial questions, with the first person to correctly answer all questions declared as the winner

Carpe Dictum

Pun Write-up

Participants will be given a series of cues with which to come up with puns and possibly incorporate the puns in other forms of creative writing.

No. of participants: 30

No. of rounds: 1

Creative Writing

Participants will have to write prose or poetry based on a theme or cues.

No. of participants: 40

No. of rounds: 1

Wordgames + Cryptic Crossword

This event will consist of a paper containing puns, anagrams, oxymoron and the like that participants (single or in pairs) must work out in order to score points. A cryptic crossword will also be part of the paper. The highest scorer wins the event.

No. of participants: 60

No. of rounds: 1

Carpe Dictum

Poetry Slam

In this event, participants will be given a topic or a theme on which they must write original poetry, which they will read out in front of an audience. The poetry will be judged by a panel of judges. Popularity of a piece with the audience may also be given consideration while scoring it.

No. of participants: 50

No. of rounds: 2

Literature Quiz (Proposed)

A literature-themed quiz consisting of an elimination round followed by an oral final round.

No. of participants: 50

No. of rounds: 2

Spelling Bee

This event will consist of both written and oral rounds testing the spelling skills of participants. First round will be written round of which the top 10 will be selected for the Oral round.

No. of participants: 40

No. of rounds: 2



Events under this Panel:

- **Principle Venture**
- **Design for Disaster**
- **My Green Idea**
- **Smart Cities, Smart Solutions**
- **Random Hacks of Kindness (RHoK)**

Principle Venture

Technology has evolved to drive society out of its binding shackles over centuries. Humans have moulded every aspect of technology to break the chains that hold back the wheels of motion for billions of people. Principle Venture 6.0 during Quark 2016 provides you a platform to attempt and come up with a technological resolution for the impediments that society faces. It is a marriage of technology and cause. Participants who are up to date with the latest advancements in the use of technology for societal pursuits and having an unconventional approach can seek to gain an edge.

Details:

There are two verticals in this event. A team can only participate in one of the verticals.

- Providing Healthcare and Nutrition for India's Slums
- Tackling problems of Child Labour In India

Principle Venture

Healthcare and Nutrition in slums:

Slums are the antithesis of any planned city, disorganized and unsanitary, these conditions present a grim picture of healthcare that threaten the lives of millions. India faces massive challenges in ensuring urban public healthcare yet it remains one of the most neglected issues in the nation, according to public health experts. Neither the national nor local governments have enacted comprehensive plans for dealing with the country's rapidly urbanizing population. So far, most of the focus of both local authorities and the global health community has been on health programs in rural areas. Devise innovative technical solutions to provide basic healthcare and nutrition to Indian slums.

Child Labour In India:

One often witnesses children being employed in economic activities in India, be it in a roadside tea stall or a hazardous factory. This deprives them of their childhood often stunting their physical and mental development. Lack of good schools that provide children a path to escape poverty and an unmonitored informal economy are considered to be the major reasons behind the prevalence of child labour. The 2011 census found over 4.35 million children being involved in economic activities as child labour.

Principle Venture

Aim:

Your aim is to employ technology to provide economically feasible solutions to eradicate child labour

- Suggest alternative income sources for families relying on their children for income
- Suggest new methods or a revamp of past methods that were used to attract children to school ensuring school attendance in large numbers and bringing a vast majority of these children under the umbrella of education.
- Forced and bonded labour continues to be a major hurdle in eradicating child labour, suggest steps that the government and various agencies involved can take to bring this exploitation to an end.

Judging Criteria:

- Long term sustainability
- Economic feasibility
- Level of impact

Principle Venture

The number of people reached or affected may not be the sole cornerstone on which impact is measured. An enduring impact is more important for a long term solution.

Round 1:

An abstract of the model will be submitted by the participating team. Dates will be intimated once participation is confirmed.

Round 2:

Presenting the idea in front of our panel of judges.

Design for Disaster

Aim:

The aim of the competition is to provide preventive measures to mitigate the effects of the disaster by reducing the impact of it or coming up with techniques to ensure maximum safety when it actually strikes. The event is divided into the following categories; a participant can choose any one and present a model to reduce the impact in that case.

Preparing:

Warning about a disaster which can happen in the future. The term '**early warning**' is used in many fields to describe the provision of information on an emerging dangerous circumstance where that information can enable action in advance to reduce the risks involved. This also includes **preparing for disasters** before hand where a particular situation has occurred in the past.

Design for Disaster

Responding:

The primary aims of disaster response are rescue from immediate danger and stabilization of the physical and emotional condition of survivors. These go hand in hand with the recovery of the dead and the restoration of essential services such as water and power. How long this takes varies according to the scale, type and context of the disaster but typically takes between one and six months and is composed of a search and rescue phase in the immediate aftermath of a disaster followed by a medium-term phase devoted to stabilizing the survivors' physical and emotional condition.

This includes reviving various networks of the community which were disrupted by the disaster. Such as reviving the markets over the area and increasing opportunities food and employment generation. Finding ways to provide essential healthcare services to the affected population.

Design for Disaster

Recovering:

Recovery refers to those programmes which go beyond the provision of immediate relief to assist those who have suffered the full impact of a disaster to rebuild their homes, lives and services and to strengthen their capacity to cope with future disasters.

Round 1:

In this round, the participants will have to give a rough plan (abstract) about their solution. They can include on how they came up with it. The disasters can be chosen by them accordingly.

- It can be a new one or an improvement of old one
- The abstract should be a ppt giving the working of the model. Not technical. Just how will it work in times of need.

Round 2:

The participants will have to present their actual model or drawing or their solution. A working explanation should be given along with it. And it should specify how it could have worked for the previous disasters. Drastic change in the model from the previous round is not allowed.

Design for Disaster

Judging Criteria:

- Technical and Economic Feasibility of the design.
- Effectiveness of the design .
- Originality, Inventiveness and technical ingenuity.
- Detailing of the design.

Team Structure:

Teams of not more than 4 members.

Who Can Participate :

- Students
- NGOs
- Corporate Organisations
- Independent Individuals

My Green Idea

Ideas are abound when you have the conviction to bring about a change around you. Want to reduce your carbon footprint? Concerned about the quality of water you drink? Wish to know how things can be recycled often counterintuitively?

My Green Idea provides you a platform to challenge your intellect. Research, build and come up with ideas that can potentially save the world and become a superhero! (Not really, but yeah!).

This edition of My Green Idea focuses on these categories

- My Green App- Simple? Not so much. From providing users the air quality information for the current location to educating the users how green the manufacturing processes for their favorite products are, ideas are plenty. Convince us why your apps will help us in reducing our carbon footprint a tad bit easier.
- The Mild And The Extreme- This one involves a great deal of research. Obsess over your love for mother earth. Pitch in ideas that could be simply common sense but also seem severe to us.

My Green Idea

- Green Architecture- With the Make In India campaign kickstarted by our PM a year ago now. A lot of new labs and manufacturing units are expected to be set up in the country. There has been great emphasis on 'greener' infrastructure and India provides great opportunities by being the second largest market for green buildings. Devise innovative ways of designing such facilities while ensuring that they are sustainable and economically feasible.

Even though some ideas here are quite elaborate we are looking for simple ideas which can save a lot energy or resources.

- Green IT- Desktops and laptops seem quite clean sitting idly on your desk without emissions but are they really green? Computers consume power and power means fossil fuels which translates to emissions. Computers contribute to 2% of the total emissions and are soon expected to double. From energy efficient hardware to softwares that tone down a computer's performance to save energy, that is where green IT comes in. Design software (or even possibly hardware) that can help cut the excess volts and help reduce your hefty machine's carbon footprint.

My Green Idea

Round 1:

The participants have to submit the abstract of the idea online. The shortlisted teams will be asked to present their idea in front of our panel of judges.

Round 2:

The participants present their idea during Quark 2016

Round 3:

Question and Answer Round

Smart Solutions, Smart Cities

"If we had recognised urbanisation as an opportunity 25 years ago, we could have been at par with the developed world today. But better late than never,"

India's Prime Minister Narendra Modi launched the Smart City mission back in June amid much hype. The smart city concept in a nutshell involves "use of information and communication technologies to enhance quality and performance of urban services, to reduce costs and resource consumption, and to engage more effectively and actively with its citizens." The concept has gained wide approval across continents with the EU having devoted resources and efforts to develop strategies to ensure 'smarter' growth of European cities and urban regions. India has ambitious plans as well, the smart city mission intends to develop 100 smart cities which incorporate smart solutions and ensure a more efficient resource usage and ICT enabled infrastructure running on cleaner energy sources.

Implementing the concept of smart cities in India remains a big challenge, the complication arises from the peculiar nature of how urban planning is carried out in the country and this means cities in India need to become smart at a more fundamental level.

Smart Solutions, Smart Cities

Roads in India for instance are dug up every once in a while to lay cables or wires and disruption of traffic and potholed roads ensue. A smart city would involve mapping of the city with utility cables and pipes and every once in a while that a new cable needs to be laid down, one simply plugs it in rather than digging the entire thing up.

This event requires one to come up with such solutions that make Indian cities smarter and provide a sustainable and decent quality of life to its citizens. Come up with comprehensive and economically feasible solutions under any one of the following categories.

1. Smart Governance- Example : Includes policies and digital services from the government that help and support the adoption of green and intelligent solutions through incentives, subsidies or other promotions.
2. Smart energy- Example : Uses digital technology through advanced meter infrastructure (AMI), distribution grid management, and high-voltage transmission systems, as well as for demand response for the intelligent and integrated transmission and distribution of power.

Smart Solutions, Smart Cities

- Smart technology- Example : Connecting the home, office, mobile phone, and car on a single wireless IT platform. Smart technology includes adoption of a smart grid system, smart home solutions, a high speed broadband connection, and roll-out of 4G technology.
- Smart healthcare- Example : The use of eHealth and mHealth systems and intelligent and connected medical devices. It also involves the implementation of policies that encourage health, wellness, and wellbeing for its citizens, in addition to health monitoring and diagnostics as opposed to treatment.
- Smart infrastructure- Example : Involves intelligent and automated systems that manage, communicate with, and integrate into different types of intelligent infrastructure, such as energy grids, transportation networks, water and waste management systems, and telecommunications.

You are not restricted to solely these aspects and can devise solutions that you may find appropriate for a smart city.

Smart Solutions, Smart Cities

Participants have to present their idea during Quark and extra points will be awarded for the people who will have their design ready. For example:

- Proper Abstraction of an App/Website.
- Proper Design of the Idea that it could be implemented, like in segregation, proper design of management.

Participation Criteria:

Individual or a team (not more than 4 members)

Judging Criteria:

- Technical and economic feasibility of the solution
- Overall Impact on society
- Demonstration of the idea
- Plan of action

Random Hacks of Kindness

Building technological solutions for a better world – A hackathon to solve real world crises. The event requires participants to provide realistic tech solutions to community problems.

Have you ever been perturbed by the problems prevalent in the society? Think you have the required technical skills to provide efficient solutions?

Random Hacks of Kindness comes to Goa with its edition being held at Quark 2016. Quark actively aims to connect to the community through provision of technological solutions to the myriad of problems the country. In this pursuit, it has associated with RHoK India to bring RHoK Goa in an effort to encourage humanitarian hacking to solve the issues facing the community. RHoK Goa is an effort to spread the spirit of using technology to create real world problem solutions and provides a platform for NGOs and techies in this quest.

Get ready to rack your brain to come up with brilliant technological solutions to problems based on issues pitched by the various participating NGOs on diverse issues faced by the local population.

Random Hacks of Kindness

Aim:

RHoK is a hackathon to solve humanitarian problems. The aim of the participants is to code and develop projects to solve the stated problems which will be given on the spot.

Team Structure: 1 to 5 participants per team.

Round 1:

Each team picks up a problem statement and works on the solution for sufficient time spanning over 2 days.

Round 2:

Each team will be given 2 minutes to present their project to the panel of judges.

Judging Criteria:

- Innovation, Creativity, Uniqueness
- Potential, Utility
- Sustainability, Impact
- Feasibility
- Applicability
- Usability
- Progress of Work

Who can participate:

- Students
- Tech enthusiasts
- Independent Individuals



PROGRAMMERS INC PANEL

Events under this Panel:

- **CodeJam**
- **Reverse Coding**
- **Binary Pirates**
- **Hackathon**

CodeJam

Do you believe not just in writing code but making it more efficient? If yes, this event is for you.

Quark present to you a competitive programming event. Rack your brains to solve puzzles and real world problems. Compete with people all across the nation and show off your programming skills.

Round 1:

Before the college level contest start participants will need to participate in a teaser round contest, which is an optional round.

The contest will be hosted online on HackerRank for a duration of 3 hours with 5 or 6 short problems.

This will be an individual contest.

Round 2:

Anybody allowed to sit for this, irrespective of his participation in the first round (optional)

The contest will be hosted online on HackerRank for a duration of 3 hours with 5 or 6 short problems.

No. of People Per Team: 1

Judging Criteria for both the rounds:

Participants will be judged based on the number of test cases the program gives the correct answer for.

Points will be given not on the lines of code but how efficiently the code works.

Reverse Coding

This event involves the participant to guess the source code for a given application by testing different inputs and analyzing the output.

Event Description

Participants will have to guess a black box function by analyzing the outputs of the function with inputs of their choice. They will have to code a program with same behavior as the hidden function. In the start, participants will receive a link where they will have to test the questions online. The portal will judge if the program matches the given function with test cases.

Each participant will receive 10 questions and they will have to submit their codes at the end of the event.

Participation will be on individual basis only. Participants are required to bring their own laptops with appropriate software installed. Participants can code in C, C++, Java and Python.

No of People per Team: 1

Criteria for judging

- Participants will be judged on the total points they score. The points will be set on how challenging the problem is.
- In case of a tie, it will be sorted by adding cumulative time of all the solved questions.
- Any participants if found using any unfair means will be disqualified from the event.
- Internet connectivity is not allowed.

Binary Pirates

Binary Pirates is a hacking competition. The event will test your coding skills along with your understanding of networking and web related concepts. So, gear up to rack your brains for whacking out the hacker in you.

Number of participants per team:

This is a competition which requires you to compete individually.

Round 1: General Round

There will be various questions in this round and solving them would result in gaining of coins, the amount of which varies depending on the complexity of that particular question. The time limit for this round is 1.5 hours. The participants would be ranked according to the number of coins they win and top 10 participants would move onto the next round.

Round 2:

The students will be provided with Kali Linux for these rounds. They would be asked to find vulnerabilities in certain applications and exploit the same. 4 students would go on the final round. The details for this round would be disclosed to them on-site.

Hackathon

Hackathon is an app and web development contest during the Quark 2016. The apps can be developed in Java, Node.js, Python, Ruby etc. The event will go on for 2 days. A theme shall be provided as a base to build your hack. The theme would be provided on spot and the contestants would be given the freedom to choose whatever they wish to build, as long as it is related to the main theme.

On the first day, the participants will be provided with the theme, guidelines and time would be allocated sufficient time to plan the project. The judges will be available to clarify any doubts and questions regarding the event. On the second day, the teams will be expected to present their projects to the same judges, who will refer to the criteria (as mentioned below) to mark them.

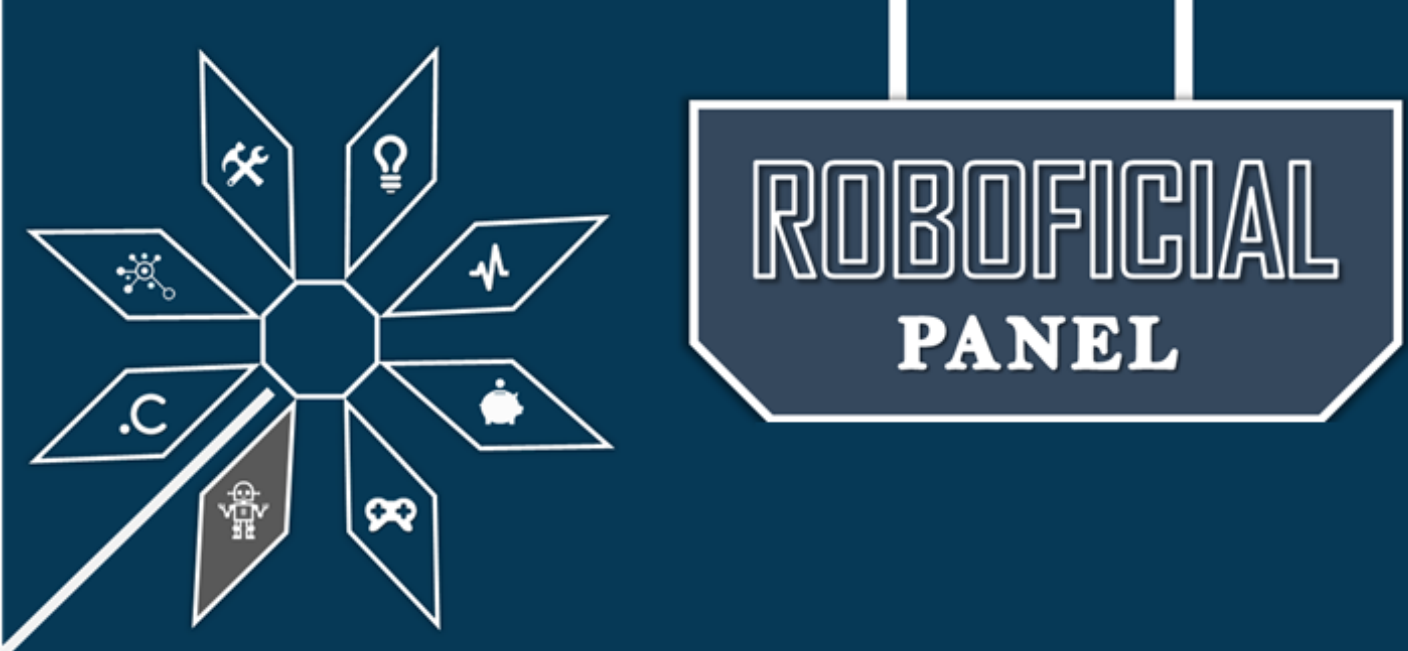
No. of Participants per team: 4

Rules:

- You can code in language of your choice.
- If any one of the rules is broken, the entire team will be disqualified.
- Knowing to program on Android and making use of services like Google Maps on the Android app and Web app will be of advantage to your team.

Judging Criteria:

- Uniqueness and innovative skills.
- Potential and Sustainability.



Events under this Panel:

- **Robokombat**
- **Roborace**
- **Robokick**
- **Line Following Bot**

Robokombat

It's that time again folks, get ready for the epic war. Design a wired or wireless, manually controlled robot and test its capability on the battlefield against other bots. This quark brings you the perfect chance to show your robotic acumen, blend your intellect & fighter instinct, controlling skill. Equip your bot with high torqued industrial motors, protective armour sheets, deadly weapons to explore the ideals of knighthood and their incongruity to combat armed forces opponent ('knight-bot'). Brutally demolish your enemy who comes in your path.

Now it is time to rumble. It's the Grand Finale of war. Get ready to feel the chills and shivers down your spine and become a part of RoboKombat, Quark 2016.

Problem Statement:

Design a wired/wireless, manually controlled robot which is capable of fighting one-on-one in a battle with other bots.

Weight limit: Maximum of 40 kg.

Size: Maximum of 60x60x60 (in cm)

(When all movable/extendable parts / weapons are fully compacted so as to occupy minimum space)

Note: (The size restrictions should be strictly followed. No arguments regarding this matter will be entertained.)

Robokombat

Rounds:

Abstract Round

Teams are required to send an abstract of the robot in the format specified (*see ABSTRACT section).

Rounds

- The competition will be played on a knock-out basis consisting of two bots at a time.
- Each duel consists of two robots challenging each other in a three (3) minute battle. In the event of a final knockout tournament stage, each battle will last for 5 minutes.
- Sole functionality of weaponry is not considered movement unless the latter are able to shift the robot's actual position.
- If the outcome of the match is indeterminate, the final victor is determined by a panel of judges who will take fighting initiative and technical damage into consideration.

* Game rounds are subject to change and entirely depend upon the event managers. Any change will be notified prior to the event.

Robokombat

Rules:

- During the match only three team-members will participate in competition (within the area demarcated for participants): one member will control the bot, another to help with control wires and the third member will control the weapons on the bot (pushers, flappers, cutting wheels, weapons etc.) Teams are allowed to switch members in different matches.
- Elimination Criteria: The robot is unable to move for 30 seconds leading to a knockout.
- A bot will be declared immobile (out) if it cannot exhibit linear motion of at least one inch within 30 seconds. A bot with one side of its drive train disabled will not be counted out if it can demonstrate some degree of controlled movement.
- Robots cannot win by pinning or lifting their opponents. Organizers will allow pinning or lifting for a maximum of 20 seconds per pin/lift then the attacker robot will be instructed to release the opponent. If, after being instructed to do so, the attacker is able to release but does not, their robot may be disqualified. If two or more robots become entangled or a crushing or gripping weapon is employed and becomes trapped within another robot, then the competitors should make the timekeeper aware, the fight should be stopped and the robots separated by the safest means.

Robokombat

- Setup time : 5 minutes
- Match duration: 3 minutes for the qualifying round. The remaining rules will be explained to the participants at the time of the event or just before the next round begins.
- Weapons cannot be used to intentionally destroy the control wires (if any) of opponent bots. Damage to the arena will lead to disqualification of the bot and thereby the team. Care must be taken to secure control wires, as mentioned below.
- Since, the event consists of more than 2 rounds involving weapons, it is therefore, suggested to concentrate on the durability of the robot and the weapon. It is also advisable to carry spare parts for external, damage prone areas and weapons.
- Organizers are no way responsible for any harm done to the robot during the events.

Robokombat

Bot Specifications:

Dimension and Fabrication

- The initial dimension of bot should not exceed 60X 60 X 60cm. However, there is no limitation on bot dimension once the match starts. (The external device used to control the machine or any external tank is not included in the size constraint.)
- The electrical voltage at any point of time in the machine should not exceed 40 V DC/AC.
- Any machine component should not be detached (intentionally) during any point of the war.
- Weight limit: 40 kg. Weight of remote controller will not be counted
- Readymade gear boxes, parts, chassis, control circuits and remote control can be used.
- Robots can be built using wheels, tracks and legs (“walkers”).

Robokombat

Bot Control:

- In case of wired bots, the wires should remain slack at any instant during the fight. All the wires coming out of the machine should be stacked as a single unit. As mentioned above, the wires coming out of the bot should be contained in a pipe (Or other alternative mentioned above). Any kind of exposed wiring (not covered by a pipe) should be held together by cello tape.
- In case of wireless system, it should have a minimum two / three frequency remote control circuit or two dual control circuits or a transmitter-receiver paired module so that the frequency interferences with opponent team can be avoided (in case of any interference in the wireless systems, they will not be considered for rematch or in the results).
- Remote controls that are readily available in the market may also be used with suitable modifications if needed.

Robokombat

Battery and Power:

- The machine can be powered electrically only. Use of an IC engine in any form is not allowed. Batteries must be sealed, immobilized- electrolyte types (such as gel cells, lithium, NiCad, NiMH, or dry cells). Since destruction is allowed batteries should be suitably and sufficiently protected from damage as far as possible.
- Also multiple rounds may be conducted back to back so the batteries are advised to be kept fully charged with backup battery(s). It is advised to make provision for alternate power source such as a provision to use 230V single phase AC. The previous statement was advisory in nature but not compulsory.
- The electrical voltage at any point of time in the machine should not exceed 40 V DC/AC. In case higher voltage is being used for weapons such as in cutting blade motors please mail the event managers and get their approval beforehand failing which teams may be disqualified.
- 230V (AC) power will be provided (for wired bots).
- In case of wireless bots batteries should be placed on the bot itself and teams cannot use AC external supply.
- In case of wired bots teams can use external batteries.
- All efforts must be made to protect battery terminals from a direct short and causing a battery fire. Failure to do so will cause direct disqualification.

Robokombat

Weapons:

Robots can have any kind of cutters, flippers, saws, hammers, and lifting devices etc. as weapons.

The following weaponry is not allowed:

- Liquid projectiles
- Acid based Weapons
- EMP generators
- Any kind of flammable liquid
- Flame-producing weapons
- Any kind of explosive material
- Radio jammers
- Any other weapon that might cause damage to the arena
- Pneumatics and Hydraulics

Robokombat

Safety

- Compliance with all event rules is mandatory. It is expected that competitors stay within the rules and procedures of their own accord and do not require constant policing. The machine would be checked for its safety before the competition and the team would be disqualified if their machine is found unsafe.
- Participants must wear shoes during a match.
- Participants are expected to abide by the rules & should co-operate with the organizers.
- If you have a robot or weapon design that does not fit within the categories set forth in these rules or is in some way ambiguous or borderline, please contact the event organizers. Safe innovation is always encouraged, but surprising the event staff with your brilliant exploitation of a loophole may cause your robot to be disqualified before it even competes.
- All participants build and operate robots at their own risk. Combat robotics is inherently dangerous. There is no amount of regulation that can encompass all the dangers involved. Please take care to not hurt yourself or others when building, testing and competing.
- Proper activation and deactivation of robots is critical. Robots must only be activated in the arena, testing areas, or with the express consent of the event organisers.
- Kindly note that we are very strict about compliance with the above mentioned Safety measures. Any violations will lead to immediate disqualification.

Robokombat

Precautions:

- It is mandatory for teams to undertake the following precautions to avoid damage to the wires during the game and also avoid tangling of the wires.
- Metal rod of nearly 50 cm at the top of the bot to channel the wires out of the robot body.
- Workshop for working on the robot will be made available during the festival for repairing the damages. Kindly get in touch with the Event Managers to avail access to the workshop.

****In any given round, the decision of the Judges will be final and binding on all participants.**

Violations:

- If the bot operator is seen to be using the wire from the controller to pull, move or hold the bot, i.e. if the wire becomes taut at any point, the team will be disqualified.
- All efforts must be made to protect battery terminals from a direct short and causing a battery fire, failure to do so will lead to direct disqualification.

Robokombat

Team Specifications:

Minimum : 3 members

Maximum : 5 members

Abstract:

Participants are requested to submit abstract.

The abstract should contain the following:

- A short write-up of the robot's dimensions, defensive and/or offensive strategies techniques, batteries and mode of control (wired or wireless).
- Photo(s) of the robot.
- Names of the members of the team. (All the team members are required to be registered before sending the abstract otherwise it would be considered as invalid.)
- A team name.
- Teams can also send a YouTube- link or a video of the working of robot. (Optional)

Note: Videos carry extra weightage which can make your way easier.

All the items should be compressed in .zip format.

Roborace

There will be three rounds in which bots have to transverse to different terrains and overcome various obstacles.

Round 1:

This round will mainly test the power and acceleration of the bots. The track will mainly consist of all terrain obstacles like mud, rocks, wood, slippery inclined surface and other later additions (if any).

Round 2:

This round will be designed to test the speed of the bots. With a smooth terrain, the track will include a hairpin incline, speed breakers etc.

Round 3:

- This will be the round where two bots will race each other.
- The top 8 bots from the collective score of the two rounds will advance to this round and we'll have quarter finals, semi-finals and the final round.
- The same track will be used in the quarter-finals, semi-finals and finals, with the addition of extra obstacles and additional paths.

Roborace

Rules:

- The team will be marked on the total time taken by the bot to complete 1 lap.
- If a bot is not able to pass an obstacle, then a penalty time will be added for skipping the obstacle.
- The penalty time will be announced later by the organizers.
- The cumulative sum of the times of the two rounds will be the basis for qualifying for the third rounds.

Battery and Power:

The machine can be powered electrically only (on-board batteries). Use of an IC engine in any form is not allowed. Batteries must be sealed, immobilized-electrolyte types (such as gel, lithium, LiPo, NiCad, NiMH, dry cells).

Bot Specifications:

- The dimension of bot should not exceed 25 X 25 X 25 cm. When all movable/extendable parts are fully compacted so as to occupy minimum space.
- Wheel diameter should be in range of 7-10 cm (Preferred).
- The bot may be wired / wireless.

Team Specifications:

Minimum : 1 members

Maximum : 4 members

Robokick

The main focus of the RoboKick competitions is the game of soccer, where the research goals concern cooperative multi-robot and multi-agent systems in dynamic adversarial environments.

Problem Statement:

To design a manual bot that can kick balls into enemy's goal-post besides being a good goalkeeper i.e., an all-round football player.

Size: 25cm x 25cm x 25cm (in cm)

Note: (The size restrictions should be strictly followed. No arguments regarding this matter will be entertained.)

Rounds:

Teams are required to send an abstract of the robot in the format specified. Participants are requested to submit abstract at the earliest (Note: Submission of the abstract is compulsory for all those seeking accommodation with us and accommodation is given on a first come first serve basis so send in your abstracts at the earliest – for details regarding the Abstract scroll down).

Robokick

The abstract should contain the following:

- A short write-up of the robot's dimensions, defensive and/or offensive strategies techniques, batteries and mode of control (wired or wireless).
- Photo(s) of the robot.
- Names of the members of the team. (All the team members are required to be registered before sending the abstract otherwise it would be considered as invalid)
- A team name.
- Teams can also send a YouTube- link or a video of the working of robot. (Optional)

NOTE: Videos carry extra weightage which can make your way easier.

* Game rounds are subject to change and entirely depend upon the event managers. Any change will be notified prior to the event.

Robokick

Gameplay:

- This is a 1 on 1 type game. A team can have maximum of 3 members.
- Each round would have 2 halves. Time duration of each half will be disclosed later.
- The bots from both the teams must attack by making goals and at the same time prevent a goal too.
- The bot must kick the balls into goal post without crossing a dead line (shown in arena).
- The bot isn't allowed to enter into the opponent's white area.
- The goal length is 72 cm which is 8 cm from the last point.
- The white area is 35 cm from the end point.
- The ball used would be Smiley balls.
- In case of a tie, 5 penalties would be taken by each team from the end of the white area one after the other.

Robokick

Bot Specifications:

- Machine should fit in a box of dimension 25cm x 25cm x 25cm (l x b x h) at the start of the competition (including whatever kick mechanisms the bot have). The external device which is used to control the machine is not included in the size constraint.
- Participants are allowed to use their own creativity for the kick mechanism.
- The machine can be wired/wireless.
- The machine must not be made from Lego parts, or any ready-made assembly kits.
- Readily available chassis layouts are not allowed. Any bot found having a readymade chassis will be disqualified.
- Each team is allowed to play with only one machine.
- The bot should not damage the arena in anyway. All bots found damaging the arena will be immediately disqualified.
- The final decision is at the discretion of the organizers.
- The machines have to use an on-board power supply. No external power supply will be allowed.
- Teams shall bring their own power supply for all its machines.
- The potential difference between any two points of the machines must not exceed 24 V DC.

Robokick

Team Specifications:

A team may have a maximum of 3 members.

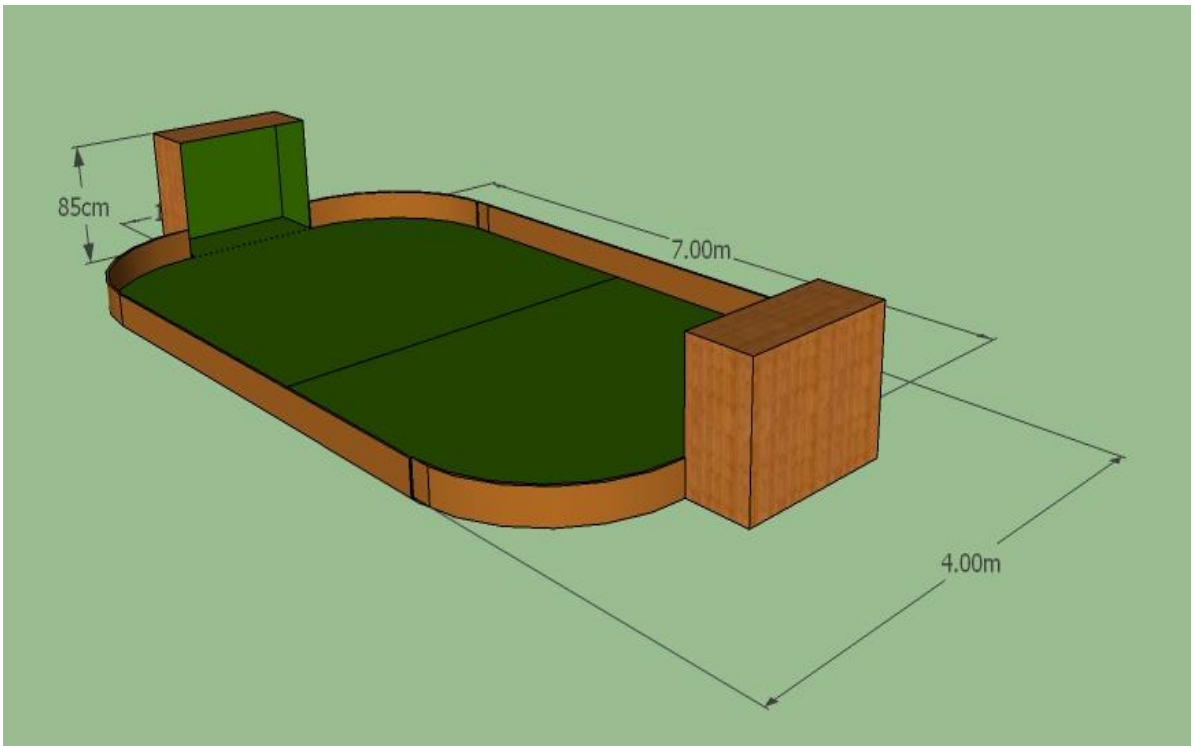
A team can register as two separate teams if they are using two different bots for the event.

Violations:

If the bot operator is seen to be using the wire from the controller to pull, move or hold the bot, i.e. if the wire becomes taut at any point, the team will be disqualified.

Arena Specifications:

As shown in the figure



Line Following Bot

Abstract Round

Teams are required to send an abstract of the robot in the format specified. Participants are requested to submit abstract at the earliest (Note: Submission of the abstract is compulsory for all those seeking accommodation with us and accommodation is given on a first come first serve basis so send in your abstracts at the earliest – for details regarding the Abstract scroll down).

The abstract should contain the following:

- A short write-up of the robot's dimensions, defensive and/or offensive strategies techniques, batteries and mode of control (wired or wireless).
- Photo(s) of the robot.
- Names of the members of the team. (All the team members are required to be registered before sending the abstract otherwise it would be considered as invalid)
- A team name.
- Teams can also send a YouTube- link or a video of the working of robot. (Optional)

NOTE: Videos carry extra weightage which can make your way easier.

Line Following Bot

Gameplay:

There will be three rounds in which bots have to move from starting point to the destination of their choice.

Robot Specifications:

- The robot should fit inside a cube of side 20 cm in all directions.
- Robot should be completely autonomous.
- The bot can be both internally or externally powered.
- The power supply should be on board. Potential at any point on the robot should not exceed 24 V. Participants cannot draw power from outside.
- Even two batteries with parallel connections are also not allowed.
- A tolerance of 5% is allowed in the dimensions.
-

Arena Specifications:

- The base of the arena is made up of white coloured flex sheet with a black coloured line on it.
- The thickness of the line may vary from 2 to 3 cm.
- The course line may have acute, obtuse and right angles, curves.
- Organizers' decision shall be treated as final and binding on all.
- The course line may also have discontinuities at various points.

Line Following Bot

Rules:

- Coordinators reserve the right to ask for the explanation of the robot.
- The robot is expected to follow the line accurately. If the robot deviates from the line, contestants are allowed to keep the bot manually in its right direction, but doing so will lead to the team being penalised.
- Magnitude of the penalty time if a team member wants to put the Line follower robot back on the line will be decided on the day of the event.
- The judgment of the organizers is final and abiding to all.
- The coordinator can change the rules of the game depending on the situation.
- Before each game begins, the participants should clearly describe how their robot detects the obstacles and indicates at the checkpoint.
- Between trials, participants may not feed information about the arena to the machine. However, participants are allowed to: Adjust sensors (Gain, Position etc.), Change speed settings and Make repairs. However, a participant may not alter a machine in a manner that alters its weight (e.g. removal of a bulky sensor array or switching to lighter batteries to get better speed). The judges shall arbitrate.

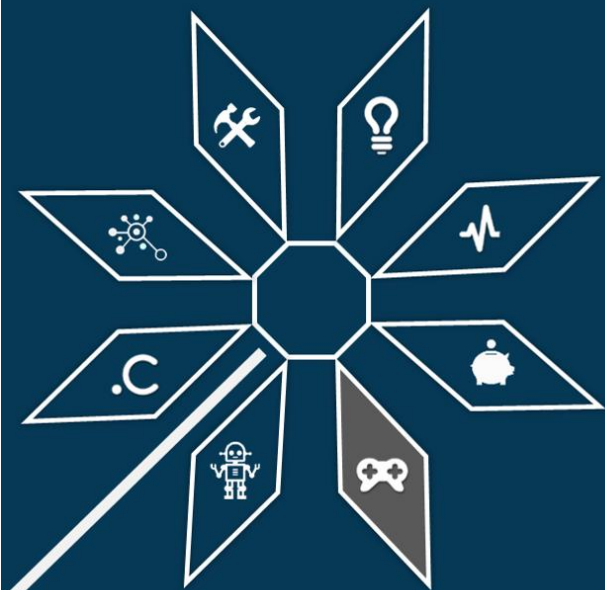
Line Following Bot

- Participants will not be allowed to handle the obstacle positions on the track. Only event managers are allowed to handle the obstacles.
- Participants are not allowed to keep anything inside the arena other than the machine.
- The judges may stop any robot at any time if they feel that it is performing, or is about to perform, any action that is dangerous or hazardous to people or equipment. No robot is allowed to use any flammable, combustible, explosive or potentially dangerous processes.
- In case of any disputes / discrepancies, the organizers' decision will be final and binding.
- The participants are requested not to assume anything without discussing with the event managers.
- The organizers reserve the rights to change any or all of the above rules as they deem fit.

Team Specifications:

Minimum : 1 member

Maximum : 4 members



SPECIALS PANEL

Events under this Panel:

- **Open Showcase**
- **Paper Presentation**
- **Poster Presentation**
- **SchoolBag**

Open Showcase

Open Showcase during Quark 2015 is a platform where you get to promulgate your projects and models, and make your amazing skills of design and innovation known to the world.

Categories:

- Mechanical and Chemical Engineering
- Electrical, Instrumentation and Computer Science
- Sciences

****Details to be announced soon.**

Eligibility: All students with a valid identity card of their respective educational institutes are eligible to participate in the event.

Abstract Submission:

1. Participants should mail their abstracts with the registration number as the subject and the participation category clearly mentioned in the body of the mail. It should preferably be in '**PDF**' the format.

2. Last Date for submitting the abstracts: **(To be announced)**. Only entries selected based on their abstracts are eligible to be exhibited at Open Showcase, Quark '16. Participants are also required to mention at the beginning of their abstracts if their idea has a prototype/model.

Open Showcase

A brief idea of how the design would be presented (exhibited) during the exhibition should also be included in the abstracts.

3. The abstract should be concise and to the point, and should not exceed three A4 sheets of text typed in Times New Roman font of size 12. This is excluding the first sheet containing the title and the last containing references (if any). The applicants are free to attach images of their model (maximum 3 in no.).

4. The first sheet should only contain title of the project, team registration number, names of the team members and their respective institutes.

5. The last sheet, following the abstract, may have a list of references – websites, books, journals and so on which amply support the ideas or solutions implemented/proposed.

6. The information in the abstract should not be very descriptive or vague. It is recommended that vital aspects of the project that require special focus be mentioned as **bold points**.

Open Showcase

General Rules:

1. Participants are required to submit a pre-event abstract, in a standard format (as mentioned above) for the screening round. The abstract should be mailed to <to be announced>
2. Only the participants who are short-listed in the screening round based on judging of the abstracts shall be invited to Quark 2016 for the final round.
3. Qualifying participants will have to make a presentation before a panel of judges explaining the salient points of their idea/innovation.
4. Teams will be given only one hour prior to the competition to set up their model/design at the venue for judging.
5. A detailed report in support of the design and highlighting the important aspects should also be brought. The report will be considered for judging.

Open Showcase

Judging Criteria:

The participant will be judged on the following criteria:

- Innovation
- Feasibility and Sustainability
- Cost Effectiveness
- Social Viability
- Discipline
- Project Report

The decision of the judges shall be treated as final and binding on all.

DISCLAIMER: The organizers reserve the rights to modify any or all of the event rules as they deem fit. The changes (if any) will be highlighted in the official website and notified to registered participants.

Paper Presentation

Paper Presentation contest held as part of Quark attracts some of the best minds from all over the country. Participants are invited to present papers spanning various research topics pertaining to the different branches of engineering and science.

Categories:

1.	Computer Science and Information Technology	[CS]
2.	Electrical and Electronics	[EEE]
3.	Mechanical and Chemical	[Me]/[CHE]
4.	Core Sciences	[SC]
5.	Humanities, Economics and Management	[HEM]

Round 1:

- Online submission of synopsis.
- The synopsis must be formatted in IEEE one column format.

Paper Presentation

- The Synopsis must contain:
 - Title
 - Authors, Corresponding author
 - Problem definition
 - Solution of the problem defined
 - Abstract
 - Keywords
 - Practical application
 - Summary
 - References
- Last date of submission of synopsis is To be announced.
- Participants are required to send their submissions at to be announced via email. Please mention the category of paper in the subject of email.
- Abstracts must be in a .pdf format only.
- The minimum page limit for all synopses is two single sided pages. The maximum page limit is 4 pages. Use Times New Roman font, 12 point, 1.5 line spacing. Smaller fonts may be used for figure captions
- Title, author's names, and affiliations should be centred.
- Abstracts should state clearly and concisely the problem, methodology used and central conclusions, and may include figures and graphs.
- Abstract must contain the participants names along with category code(mentioned in square brackets beside category).

Paper Presentation

- **Maximum no. of team-mates is 3.**
- Most important of all: Any form of plagiarism will lead to immediate disqualification. (We use special purpose softwares to detect plagiarism)

Those whose papers have been selected for the final round shall be informed by email within a day of the deadline.

Round 2:

- Teams selected on the basis of the first round will have to give their presentation in Quark 2016.
- Those who are selected for the final round are required to send us a mail at <to be announced>. The mail should consist of the following things :
 - Acknowledgement that you are aware of you being selected.
 - Details of all the team members: Names, Departments, Phone numbers, College, etc. Please try to put them in a proper tabular format for our convenience.
 - Image of travel ticket bearing above names.
 - The final paper must be formatted in IEEE ONE COLUMN FORMAT.
 - Please mail the final paper at adityagc@gmail.com with your team id in the subject. Submitting full paper is crucial to confirm your participation in final round .

Paper Presentation

- For the final round the participants will have to give their presentation in Microsoft PowerPoint.
- Only picture clippings and graphs may be used.
- Recorded dialogues or movie clippings are not allowed.
- Computer for presentation will be provided by us. The teams will get 9 minutes to present their idea. They will then have 1 minute to wind up.
- This will be followed by a question and answer session by judges and/or students attending the ppt for 3 minutes duration. 15% marks will be deducted for every minute exceeded after 10 minutes.
- The decision of the judges and the organizers shall be final and binding.

Paper Presentation

Categories with suggested topics:

- Computer Science and Information Technology [CS]
 - Artificial Intelligence
 - Graph Theory
 - Computational Complexity and Language
 - Computer Science and Game Theory
 - Cryptography and Security
 - Data Structures and Algorithms
 - Discrete Mathematics
 - Distributed, Parallel, and Cluster Computing
 - Formal Languages and Automata Theory
 - Computer Graphics
 - Human-Computer Interaction
 - Information Retrieval
 - Multimedia
 - Neural and Evolutionary Computing
 - Operating Systems
 - Compiler and Programming Languages
 - Robotics
 - Social and Information Networks
 - Internet measurement and modelling
 - Wireless networks
 - Mesh, ad hoc and sensor networks
 - Peer-to-peer, overlay and content distribution networks
 - Online social networks
 - Power and energy efficient architectures
 - Processor, memory, interconnect, and storage architectures

Paper Presentation

- Chemical [**CHE**]
 - Multi-phase Flow and Complex Fluids
 - Polymer Science, Advance Materials and Membranes
 - Catalysis and Chemical Reaction Engineering
 - Bio-fuels and Bioengineering
 - Conventional and Non-Conventional Energy
 - Process Control and Optimization
 - Environmental Engineering and Interfacial Phenomena
 - Thermodynamics, Molecular Simulation and Nano Sciences
 - Chemometrics
 - Inventory and Flow Control in Complex Process Networks
 - Natural and Fabricated Nano-materials
 - Sustainable Energy Systems
 - Mass Transfer and Separations
 - Nanoscale Science and Engineering
 - Product and Process Systems Engineering
 - Novel Reactors
 - Manufacturing Science: Behaviour and Structure of Polymers and Ceramics
 - Interfacial Science and Engineering
 - Microscopic Analysis of Solids Handling
 - Water resources and Management
 - New Modelling Tools
 - Lab on a Chip

Paper Presentation

- Electronics and Electrical **[EEE]**
 - Soft Computing Techniques: Microprocessor and their application
 - Robotics and Automation
 - Fuzzy Control Techniques
 - Green Power: Alternate Energy Sources
 - Wireless Communication Techniques
 - Embedded Systems Design
 - VLSI design
 - Power Systems Analysis
 - Power Markets
 - Power Electronics and Drives
- Mechanical **[ME]**
 - Mechatronics
 - Automobile Engineering and Design
 - Computational Fluid Dynamics & Finite Element Analysis
 - Computer Aided Design & Manufacturing
 - Microprocessor Based IC Engines/ Camless Engines
 - Total Quality Management
 - Genetic Algorithms in Machine Design
 - Aerodynamics
 - Plastic and Composite Manufacturing
 - Manufacturing Technology Management
 - Nano manufacturing
 - MEMS

Paper Presentation

- Sciences [**SC**]- (Please mention the subcategory in the subject of email)
 - Physics
 - Chemistry
 - Biology
 - Maths
- Humanities, Economics or Management [**HEM**]- (Please mention the subcategory in the subject of email)
 - Art
 - Culture
 - Media Ethics
 - Nihilism
 - Great Depression
 - European Monetary Union
 - Asian Currency Crisis
 - Strategic Planning

Poster Presentation

Poster Presentation contest in the Quark 2016 provides you the launch-pad to showcase your idea to some of the best minds in the field of your choice.

General Rules:

- The dimensions of the poster should not exceed A1 size sheet.
- Allocate the top of the poster for the title and authors. Mention the category code (mentioned in square brackets beside category) in top left corner of the poster.
- The text, illustrations, etc. should be big enough to be read from a distance of two meters.
- The posters must reach us via post by to be announced.
- Poster must contain the participants' names along with category code (mentioned in square brackets beside category).

The categories are the same as mentioned for Paper Presentation.

SchoolBag

Poster Making Competition:

Remember all those awesome structures you used to create with your building blocks set?

In Quark 2016, use your mechanical aptitude to come up with a solution to a basic design problem given on the spot, and present your design using a hand drawn poster. No technical knowledge required, you can use universal symbols (like arrows) and text to get your ideas across.

Category:

A: Classes 8-10

B: Classes 11-12

Details:

- A design based poster making competition for school children of classes 8-12.
- A simple design problem will be provided on the spot, which can be solved logically using the basic scientific knowledge. No knowledge of technical design required.
- Teams of 1-2, Members of a team must be from the same school, and must be from the same category.
- One team per school for each category.

SchoolBag

Science fair:

Science Fair for Secondary and Higher Secondary Students (9th – 12th), is an opportunity for students to put on their thinking caps and to present their ideas and innovation.

Topic: TBA

Rules:

- Students are required to make a working model or display project on Renewable Energy.
- The school team may be represented by a maximum of three students per exhibit and one escort Science Teacher.
- The exhibit/project may include
 - A working model to explain a concept, principle or a process
 - An indigenous design of a machine/device
 - An innovative/inexpensive design or technique
 - Application of basic principles of Science/technology
 - Scheme/design of a device or machine to reduce the production cost
 - Investigation-based study
- Each school can submit a maximum of three exhibits.

SchoolBag

- You are requested to send the names of all team members for each exhibit by <dates to be announced>
- Each model should be accompanied with a write up consisting of Title, abstract, Introduction, Theory and working. The write-ups may be accompanied by images. The write- ups are to be sent in word format by email.
- The best models get opportunity to be showcased along with national and international Exhibits during Quark 2016 and chance to win exciting prizes.

DISCLAIMER: The organizers reserve the rights to modify any or all of the event rules as they deem fit. The changes (if any) will be highlighted in the official website and notified to registered participants.

SchoolBag

Quiz - ELEMENTARY

Rounds:

Physics of the Impossible: A number of mind boggling, physics ideas given to the participants asking them probable solutions to them, workarounds.

Dexter's Lab: The teams need to solve a few problem statements based on one of the labs (biology, chemistry, physics).

Whodunit: Teams have to solve logic based questions in a fixed time limit (multiple choice questions). Teams who clear this will be given clues to a crime solving puzzle and will have to solve it before the other teams do.

Sections:

Section A= Classes 8-10

Section B= Classes 11-12

Rules:

1. A quiz event which tests the participant's logical reasoning (LR), analytical skills (AS), scientific aptitude (SA), and awareness of the scientific world.
2. Maximum of 3 members per team, with one captain. All members from a team must be from same school and fall into the same category (A or B).
3. A on-spot preliminary written test will be conducted (based on LR, AS, SA).
4. Subsequent rounds will have marking rounds and eliminations of teams based on marking rules.

SchoolBag

The Quark Debate

A modified Lincoln Douglas format Debate. Get ready to lock horns in verbal combat and stun your opponent in a volley of cogent rebuttals.

Single Category: Classes 8-12.

Rules:

- Teams of 2
- Topic will be given fifteen minutes in advance. Internet facilities will be provided for the duration and topics will be general in nature.
- The first FOR speaker speaks for 3 minutes, followed by a 3 minute speech by the first AGAINST speaker.
- This is followed by a cross-questioning round, where each team is allowed 1.5 minutes to ask questions to opposition. (No cap on questions, follow up questions not allowed).
- The second speaker of the FOR team shall wrap up the argument in a 3 minute speech,
- Followed by a similar 3 minute speech by the second AGAINST speaker.
- 1 or 2 Elimination rounds in total, followed by a semi-final and a final in each category. All rounds will have the same format.

This will be followed by a Mega-Final (of the same format), where the winners and runner-ups of each category will face off.