AN INVITATION TO SCHOOLS TO PARTICIPATE

Schools are cordially invited to participate in the **QSITE Grand Prix Robotics Competition** for 2017.

Your school can register just one team or multiple teams of up to 4 students from **Years 4 to 12** to compete in the **Grand Prix Challenge to be held at Bentley Park College on Saturday 2nd September 2017**

**COMPETITION DATE:**  Saturday 2nd September at Bentley Park College.

**TIME:**  8:30 am (for 9:00 am start) until 12:30 pm (approximately)

**COST:**  $15 per team (schools will be invoiced after the event)

**REGISTERING TEAMS:**  Use the link


Register your interest by:  **Monday 28th August**

**The Competition is conducted in three divisions for the first time.**

- **Upper Primary** (Years 4 to 6)
- **Junior Secondary** (Years 7 to 9)
- **Senior Secondary** (Years 10 to 12)

There are two events that teams can participate in. **Racerbots and Dragsterbots.**

Details of both events and rules pertaining to them are on the following pages. It would be great for your school to be involved.

Regards

Mark Holland
QSITE (FNQ) Chapter Chair

**For Further Information Contact:**

Leigh Howser  |  T 0477 337 608  |  E  lhows3@eq.edu.au
Mark Holland  |  E  mholl45@eq.edu.au
Supplementary Information – The Competition

What is a Robotics Grand Prix?

Competing teams can compete in two events:

**Event 1 (Racerbots):** Racerbots are driven around a designated flat track (defined by rope barriers) in the shortest possible time. Teams are given one attempt to set a qualifying time. In the knockout finals, the Racerbots will compete against each other in an individual pursuit. Racerbots must be controlled by a Bluetooth controller. Controllers can be iPods, iPhones, laptops, PS3 Controllers or a NXT/EV3 Brick. Support for programming with Bluetooth is available to teams as well as sample programs.

**Event 2 (Dragsterbots):** Autonomous pre-programmed dragsterbots are raced along a drag strip of approximately 10 metres in length. Dragsterbots will be timed over the distance and the best time recorded times from 2 attempts will be used to determine which teams make the finals of the drag race competition. Two programs will be required of the dragsterbot. One is a 5 second delay before the dragsterbot commences; the other is a light sensor activation. The latter only if the dragsterbot qualifies for the knockout finals.

**Why get involved in Grand Prix Robots?**

Grand Prix Robotics is a fun and exciting way of engaging students in the field of robotics. It provides opportunities for students to learn about mechanical, electrical and software engineering, computer science, interactive programming and teamwork.

The competition focuses on bringing together students from diverse backgrounds in a competitive tournament where students are developing group work skills and sportsmanship.

**Robot Specifications:**

<table>
<thead>
<tr>
<th>Racerbots Class</th>
<th>Dragsterbots Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lego</td>
<td>Lego</td>
</tr>
<tr>
<td>Height Limit:</td>
<td>Height Limit: 30cm</td>
</tr>
<tr>
<td>unlimited</td>
<td>Width Limit: 40cm</td>
</tr>
<tr>
<td>Width Limit:</td>
<td>Length Limit: 30cm</td>
</tr>
<tr>
<td>30cm</td>
<td>Weight Limit: 1.5kg</td>
</tr>
<tr>
<td>Length Limit:</td>
<td></td>
</tr>
<tr>
<td>30cm</td>
<td></td>
</tr>
<tr>
<td>Weight Limit:</td>
<td></td>
</tr>
<tr>
<td>1.5kg</td>
<td></td>
</tr>
</tbody>
</table>

**Drivers please note:**

All robots will be weighed and measured as part of the registration process on the morning of the event. Please make sure you are present in plenty of time for a 9:00am start.
How is the tournament conducted?

There will be 3 separate divisions for both competitions.

Upper Primary (Years 4 – 6)
Junior Secondary (Years 7 – 9)
Senior Secondary (Years 10 – 12)

Event 1: Racerbots

The shape of the racetrack to be used will remain unknown to all competitors until the day of the competition. The track will be on a flat surface with straight sections and corners and may have obstacles to negotiate. Reverse may be needed to complete the course. There will be a smaller practice track available for competitors to warm up for the event.

Racerbots must be controlled remotely by a Bluetooth controller. Controllers can be iPods, iPhones, PS3 Controllers or a NXT/EV3 Brick.

Qualifying: Both Primary and Junior Secondary division teams will compete in a qualifying round. This entails completing 3 laps of the course and setting a qualifying time. The qualifying times determine the placing for the finals.

Finals: Each final will have two racerbots on the track at one time. They will be driving in the same direction, starting from opposite sides of the track. Each race will begin on the referee’s signals.

The winner will be the first racerbot to cross the finish line after 3 laps, or if the slower racerbot is passed by the faster racerbot before the end of the race. In the event of a tie for a qualifying position, there will be a race-off between the two teams.

Any racerbot that leaves the track must be replaced on the track by a team “pit crew” and placed back onto the track where the racerbot left it. (NB only one “pit crew” per team is allowed).

Any racerbot that deliberately takes short cuts or leaves the track to gain some advantage will be recorded as did not finish (DNF) and no time will be recorded, or in the event of a final, will be disqualified.

Racerbot Awards:
The 4 members of the winning school team in each division will receive a Champions Award medallion from QSITE (The Queensland Society for information Technology in Education) - Far North Queensland Chapter.

An Encouragement award medallion will also be presented in each division to the school team chosen by the organising committee as having fulfilled the elements of the event to a good standard and showed high levels of resilience and sportsmanship.
Event 2: Dragsterbots

There will be a two lane, divided flat track marked out to 10m long and a width which expands from 40cm to 1.5m wide approximately. The drag strip will have wooden walls 4 cm high and 2 cm wide down either side of the track.

Points to consider:
- Your dragsterbot’s length must be no longer than 30cm
- Your dragsterbot must be fully autonomous
- Your dragsterbot may only be powered by a maximum of 3 motors
- Your dragsterbot will be programmed for a 5 second wait (for qualifying heats)
- Your dragsterbot will have a light sensor to activate its program (for finals only)

Any dragsterbot that leaves the track, or has an accident which prevents it from finishing its run, will be recorded as did not finish (DNF) and no time recorded.

Each division’s qualifying rounds (for timing) will be conducted using a random draw. There will be 2 rounds per team with the best time recorded. The fastest times during qualifying will be used to determine the teams which will take part in the finals.

Qualifying: A team member places the dragsterbot on the starting line and initiates the program on the judge’s call. The robot will remain stationary for a 5 second delay before commencing its run down the track. A time is given for 2 attempts. The fastest times will be used to determine the placing for the finals.

Finals: The dragsterbot will be placed on the starting line and the light sensor program initiated. A large box with a spotlight attached will be positioned over the dragsterbots. On the judge’s call, the light will be switched on; which will signal the dragsterbot’s program to engage.

The winner of each final’s race will be determined by being the first dragsterbot to the end of the dragstrip. Times are not important.

Things your Dragsterbot program is not allowed to do:
1. Use jamming devices, such as Bluetooth jammers intended to interrupt the connection of the remote controller and the dragsterbot
2. Use building parts that could break or damage the track
3. Use motors other than Lego motors
4. Use sticky or slippery substances to alter the condition of either track
5. Actively using the dragsterbot to harm the track, or any sensors placed on the track.

Dragsterbot Awards:
The 4 members of the winning school team in each division will receive a Champions Award medallion from QSITE (The Queensland Society for information Technology in Education) - Far North Queensland Chapter.

An Encouragement Award will also be presented in each division to the school team chosen by the organising committee as having fulfilled the elements of the event to a good standard and showed high levels of resilience and sportsmanship.
Perpetual Trophies presented to schools:
The *Bruce Cordiner* Robotic’s Trophy will be awarded to the school which scores the highest total points in the Junior Secondary and Senior Secondary robotics competitions.
Bruce is life member of the Far North Queensland Chapter of QSITE.

The *Mark Holland* Robotic’s Trophy will be awarded to the school which scores the highest total points in the Primary (Upper Primary) robotics competition.
Mark is the long-time Chapter Chairman of the Far North Queensland Chapter of QSITE and a life member.

These perpetual trophies will be contested in all Robotics Competitions sponsored by QSITE (FNQ) - *The Queensland Society for Information Technology in Education*. These events currently include Sumo Robotics, the Robotics Grand Prix and Robo-Cup. The school of the winning team will organise for the trophy to be engraved and then retain it until the next event is staged.
To calculate the winning school for these trophies, points will be awarded to teams from schools who reach the finals of each of the events. In the case of the Robotics Grand Prix, this would be the Racerbot and Dragsterbot Challenges.
The following indicates the points scoring system used for each event. Points are tallied and the school with the highest score wins the trophy.

<table>
<thead>
<tr>
<th>First Place</th>
<th>6 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second</td>
<td>3 points</td>
</tr>
<tr>
<td>Third</td>
<td>1 point</td>
</tr>
</tbody>
</table>

Food & Drinks:
A sausage sizzle will take place during the course of the morning.
Cordial and water will be available.
The cost is a gold coin donation to help offset the costs.