Gus Gannon Robocup 2019 Sydney field report

**Interview**

During the interview three teams were taken to a small booth and each was given just under ten minutes to give a presentation about their robots. After each presentation, the other teams got the chance to ask questions before the adjudicators asked. After this, the next team presented and so-on until all three teams had presented. Neither of the other teams asked us any questions and only one of four adjudicators asked a single question. This interviewer was Marek Suppa (Robocup Committee member) and his question was asking how Aparaj found the constants in his orbit calculation. I believe that our interview presented in an informative way given that the other teams and the adjudicators did not feel the need to ask questions at the end. Something that I may have done differently is give handouts to all members present and direct them to certain sections of the handout as we speak, as well as using our slides.

**Poster**

The poster marking process was not as competitor involved as I expected it to be. The adjudicators came around, looked at our poster and moved on. No questions were asked. Members and mentors of other teams, however, used this time to ask us questions about our robot which kept us busy for the full duration of time allocated for the poster session.

**Weightings**

The performance in gameplay was worth 40%. The poster was worth 20% and the interview was worth 10%. 10% was given to teamwork which was marked at random, unknown times throughout the competition. 5% was awarded for team spirit as voted by other teams, 5% for signing up for the technical challenges, 5% for filling out a form prior to the commencement of competition.

**Referees**

Most of the referees were either university students or team mentors that needed to fill in time. They often were strict enough with the out of bounds rule however, on occasions, there were some inconsistencies. Firstly, if the referee wasn’t paying attention to a certain robot and it went out, they often wouldn’t question teams on whether it was pushed out or not and just agreed with whatever the team said. Another inconsistency came from referee to referee. Some interpreted the “pushed out rule” as the robot would not be pulled off as damaged if it was pushed out regardless of team and others took a robot off if it was pushed out by its own teammate. Each interpretation was kept consistent throughout the entire match, however. The “pushing” calls were not as frequent as I expected from watching videos of last year’s competition. Pushing was still called when it was obvious that a robot had been moved however, there were some cases where a robot may have been touched by another robot and pushing was not called, which is a violation of the rules. The calling of multiple defence was a weak point for the referees. Many would not call the rule unless reminded by the teams present. The selection of which robot to move was also not equal as some referees removed the robot causing the least effect on the current situation and others would remove the robot that was blocking the goal, ending with some conceded goals that were unfair. The pushing rule was much looser in superteam games and was often interpreted differently by referees manning opposite goals on the same field. Clarification of the pushing rule to teams and referees needs to be carried out before next year’s competition. Another issue with the refereeing during the superteam matches was the referees handling the ball on the field not being agile enough and blocking or even stepping on robots. This could be solved by giving them opaque gloves that block IR light, stopping all robots on the field when they move the ball. This was also an issue during individual games. Referees were often too slow to move the ball from neutral point to neutral point, ending with our robots already taking up the neutral point in question. This caused a passing back and forth between referees that went on for several seconds. This was avoided in some matches when the referees used opaque gloves.

**Results**

We won individual and superteam (ytb)

**Organisation**

The event was overall well-organised. Game schedules and results were posted well in advance of the next round of games. Referees were mostly punctual to the matches and the organising committee were open to questions and were easy to access throughout the competition. There were two main issues in organisation throughout the competition. The crossbar being two centimetres short was one such issue. This was dealt with well by the even organisers, however, there was much fighting on the teams’ part to get to the result. The abundance of blue light around the fields was the other issue. Even if the screen had a white image on it, the blue light projected would interfere with goal-tracking. This could be solved by not having RGB LEDs of any description near the playing area.

**Inspection**

The inspection test was like the Australian domestic competition. They used a flat board with a 3D printed hemisphere that was used to test the capture zone depth. They also used a set of electronic scales to measure the weight of the robot and a cylinder like the one in our room to test robot size. Then then used a multimeter to test battery voltages and made us turn the robots on to check for LEDs.

**Workspace**

The workspace was one table, about the size of those found in the middle school, with four chairs around it and a power board. These were pre-assigned.

**Superteam**

The superteam competition had four countries play five robots on a larger field with normal rules. We shared a superteam with the Israeli’s (GND), Taiwanese (SOY compendium), and Singapore (Raffles). We were the team that sported two robots in this competition, and we won. We used our attacker and defender; the rest of the team used their attackers. There was no superteam interview and comments about refereeing have been stated earlier.

**Competitors**

We went undefeated throughout the competition however, there were two teams that were very close to us. SkyCrew was one of these teams. They had very similar robots to ours and we only managed to win 1-0. The main difference was their use of crosshair light sensors instead of a circle. Legend were another good team who, in my opinion, had the best robots on the field when they were working however, their robots were often breaking and for most of our game against them they only had one robot. They managed to fit both a kicker and dribbler on their robot which is something we aim to have at next-year’s competition. The main weakness for most teams was reliability. Most teams had broken robots at some stage in the competition which is one of the reasons why I believe our team and the German team (Bohlebots Quadro) were so successful.

**Self-evaluation**

I think a weakness I had was that I would move around the venue looking at other exhibitions without informing the rest of my team where I went. I think that I worked well in that I managed to stay calm during tense moments and could think about situations strategically. This was important as being the ‘team captain’ meant that I was the one who could speak with the referees. I think this was done effectively. I believe that we achieved the results we did because we set deadlines for different sections of the robot very early which gave us more time to weed out issues. The reliability of our robots also contributed to our success.

**Improvements for BBC**

What we need to do in the future is be more prepared in the future. R&D needs to be completed well in advance of competition in order for an adequate amount of testing time is to be carried out. The quality of the robots is also not necessarily the most important part. We found that in games it wasn’t always the team with the best robots that won, but the team with the most consistent robots. Team Legend for example in our league probably had the best robots when they worked however, they were often breaking, ending with them getting fourth in gameplay. There aren’t many advanced strategies in lightweight which is an opportunity for BBC to take the lead. There are some strategies that I have theorised that will need to be tested however, these require both a kicker and dribbler which our robots currently don’t have.