

# 2017 Skills Ontario Robotics Question / Responses Summary

## January 19<sup>th</sup>, 2017 Update

### Question One:

**From:** Peter Bondi

**Sent:** Saturday, September 10, 2016 1:06 PM

**To:** Bob Tone

**Subject:** Scope Clarification- Robotics Team of Four

Hi sir, I'm Peter from Michael Power, and the student leader for this year's Skills Canada Robotics club, working with teacher moderators Mr. Comisso and Mr. Serpe .

We were reviewing the scope and wanted clarification for an apparent contradiction in instructions. On page 3, the scope states that:"Teams will bring two different separate Robots – One for the Tele-operated component and one for the Autonomous component."

On page 13, it states that "Teams can utilize a Maximum of 2 Tele-operated Robots ".

I understood this to be a lack of co-ordination and nothing more,and assume that we are allowed to use two tele-operated robots,and then one autonomous robot.

Is this assumption correct?

Thank you for your input in the matter,

Peter Bondi

### Response One:

Teams must adhere to the 4 cubic feet maximum size for their tele-operation entry but they can utilize this space anyway they wish.

Example One: A single tele-operated robot.

Example Two: Two tele-operated robots as long as their combined size fit into the allowed 4 cubic feet maximum size allocation.

Example Three: A combination tele-operated and autonomous entry as long as their combined size fit into the allowed 4 cubic feet maximum size allocation.

There is no size restriction placed on the Autonomous Robots intended to participate in the Autonomous Only Competition other than they need to be able to move within the available court space without damaging the court.

### Question Two:

**From:** Peter Bondi

**Sent:** Saturday, September 10, 2016 1:19 PM

**To:** Bob Tone

**Subject:**

Hi sir we have another issue for clarification

When it states that "Teams may also have Independent Autonomous Elements as part of their entry. These elements may possess ONLY ONE Football at a Time each and these Football(s) do NOT count against their Team's Maximum Two Footballs at a time limitation", does it refer to elements that are just independent from tele-operation but can be mounted on the robots, or physically independent from the robot when in use (as well as independent from tele-operation)?

Thanks for your help,  
Peter Bondi

**Response Two:**

The reference is to footballs in the possession of elements / devices that are totally / physically independent of the robot. Any element mounted on a robot is considered part of the robot and subject to the restriction related to the number of balls.

**Question Three:**

**From:** Raake, Glenn  
**Sent:** Wednesday, September 14, 2016 12:55 PM  
**To:** [bobtone@rogers.com](mailto:bobtone@rogers.com)  
**Subject:** Football Source Platform

Hi Bob

Page 22 states, "The football source platform is 0.75 thick plywood sheet."

Page 28 drawing side view shows 0.50"

Please clarify thickness. Thank you.

Regards,

Glenn Raake  
St. Mary's Catholic High School  
431 Juliana Drive  
Woodstock, Ontario  
N4V1E8

**Response Three:**

0.5 in. is correct measurement but teams need to keep in mind the scope sets a tolerance of 0.5 in. so a 0.75 in. base board would fall within this expected tolerance range.

**Questions Four and Five:**

**From:** Mr. Filion  
**Sent:** Friday, September 16, 2016 11:32 AM

**To:** Bob Tone

**Subject:** Robotics Question ...

Hi Bob!

We are excited to get going on this year's competition and the kids had a couple of questions that we did not see any details about in the scope, so we thought we would ask you directly.

1. Does the 4 cubic foot specification include the Autonomous Robot?
2. How is the initial position/orientation of the robot at the start of game determined for the autonomous robot competition?

Thanks!

Marc

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**Marc Filion**

*Acting Head of Business & Technology*

*Erin District High School*

**Response Four:**

Teams must adhere to the 4 cubic feet maximum size for their tele-operation entry but they can utilize this space anyway they wish.

Example One: A single tele-operated robot.

Example Two: Two tele-operated robots as long as their combined size fits into the allowed 4 cubic feet maximum size allocation.

Example Three: A combination tele-operated and autonomous entry as long as their combined size fits into the allowed 4 cubic feet maximum size allocation.

The Autonomous Football Robot is a separate entity and is NOT included in the 4 cubic feet maximum size restriction. There is no size restriction placed on the Autonomous Robots intended to participate in the Autonomous Only Competition other than they need to be able to move within the available court space without damaging the court.

**Response Five:**

In the autonomous football game Robots will be positioned with their back against the End Zone Barrier at the mid-point of this barrier requiring the robot to travel to the opposite end of the court to retrieve their first football.

**Question Six:**

**From:** Comisso, Gianluca (Michael Power/St Joseph)

**Sent:** Thursday, September 22, 2016 6:20 PM

**To:** Bob Tone

**Subject:** accessing question and answer forum

Hi Bob,

I hope all is well. How do you get to the question and answer forum? Also, does the ball have to be thrown into the 3 point circle or can you place it. For example, can you have an arm that reaches through the hole and drops the football in?

Cheers,

Luca

**Response Six:**

Answers are being sent directly to the team that asks the question.

Answers will be shared with all teams by having Skills Ontario post the Questions / responses to <http://www.skillsontario.com/competitions/secondary/scopes> in the robotics section (but this process has not started as yet).

Robots are not allowed to touch / come in contact with the scoring structure / bin / backboard at any time.

The obvious solution is to have some variation on a 'Throw' involved in scoring either a 2 point ball or a 3 point ball but if teams can create a solution that reaches above the 2 point bin or into the Hail Mary Hole in the backboard then releases / drops a ball this would be allowed as long as **NO part of the robot touches / comes in contact with any part of the structure supporting the bin or the bin itself or the backboard.**

Note: It is not shown in the scope images but there will be a very light weight net behind the Hail Mary Hole to catch balls and help avoid scoring errors on the part of the referee. I intend to offset this net from the back of the backboard so the netting will not prevent a ball from passing through the Hail Mary Hole.

Of course no part of a robot will be allowed to touch / come in contact with this netting.

**Question Seven:**

**From:** Mack Thwaites

**Sent:** Thursday, October 6, 2016 11:29 AM

**To:** [BobTone@rogers.com](mailto:BobTone@rogers.com)

**Subject:** 2016 Skill Ontario Robotics Course

Hi, I am a student at Eden High School participating in the 2016 Skills Ontario Robotics Competition and am trying to build the Pass Receiver (Backboard). I have a few questions about some dimensions. Part 6 (The plywood back board), does not have a specified thickness and Part 4 has two length measurements(one in the parts list and one on the breakdown). If you could get back to me with the correct dimensions for these parts ASAP it would be greatly appreciated.

Thanks,  
Mack Thwaites

**Response Seven:**

Hi Mack

The dimensions in the drawing are the correct dimensions for the backboard 24 by 18 by 0.75 inches.

The reference to 12 inches in the text on page 16 is incorrect.

**Question Eight:**

From: Ian McTavish [<mailto:Ian.McTavish@TLDSB.ON.CA>]

Sent: Tuesday, October 11, 2016 3:32 PM

To: [bobtone@rogers.com](mailto:bobtone@rogers.com)

Subject: Robotics Scopes

A couple of questions regarding the robotics scopes:

Page 11 - the stands are 'fixed' in place - does this mean they are physically attached to the plywood or they start in a set location but can be moved?

Page 13 - With the teleoperated robots if we were to build 2 does the total volume for both robots combined equal 4 Page 20 - can a camera be used if the camera is used for vision processing and no signal is sent to the driver other than an number representing the distance to the target?

Sincerely,

Ian McTavish  
Teacher/Librarian  
Huntsville High School  
Huntsville, ON

**Response Eight:**

Hi Ian

Here are the responses to your questions.

Page 11 Question - the stands are 'fixed' in place - does this mean they are physically attached to the plywood or they start in a set location but can be moved?

Proposed Response: Teams **cannot move** the football stands at any time during game play.

Page 13 Question - With the tele-operated robots if we were to build 2 does the total volume for both robots combined equal 4

Proposed Response: Teams **must adhere to the 4 cubic feet** maximum size for their tele-operation entry but they **can utilize this space anyway they wish.**

Example One: A single tele-operated robot.

Example Two: Two tele-operated robots as long as their combined size fit into the allowed 4 cubic feet maximum size allocation.

Example Three: A combination tele-operated and autonomous entry as long as their combined size fit into the allowed 4 cubic feet maximum size allocation.

Page 20 Question - can a camera be used if the camera is used for vision processing and no signal is sent to the driver other than an number representing the distance to the target?

Proposed Response: **YES** a camera can be used as long as the image generated by the camera is **displayed 'ON the Robot'** either in the camera's own view finder or in a mounted on the robot lap top or other **'ON the Robot'** device screen.

**Question Nine:**

**From:** Rikin Skywalker

**Sent:** Wednesday, October 12, 2016 4:04 PM

**To:** [bobtone@rogers.com](mailto:bobtone@rogers.com)

**Subject:** SKILLS Ontario Autonomous Robot Competition

Mr Tone,

I have some questions about the Autonomous component of the SKILLS Ontario Robot Competition.

1. Is there a limit on how many balls the autonomous robot can carry at a time?
2. What is the robot's starting position?

I apologize if these questions were answered in the scope or available elsewhere, my team and I have not found them so we decided to ask.

Thank you,

- Rikin Gurditta

Turner Fenton Secondary School, Brampton

**Response Nine:**

Hi Rikin

Thank you for your questions.

My responses and your questions will be added to the Summary Question / Responses document posted to:

<http://www.skillsontario.com/index.php?p=download&file=555>

Regarding your specific questions.

1. Is there a limit on how many balls the autonomous robot can carry at a time?

Response: YES there is a limit and that limit is the same One Football at a time limit referenced in the tele-operated football game.

2. What is the robot's starting position?

Response: In the autonomous football game Robots will be positioned with their back against the End Zone Barrier at the mid-point of this barrier requiring the robot to travel to the opposite end of the court to retrieve their first football.

**Question Ten:**

**From:** Emer, David (Mary Ward)

**Sent:** Monday, October 17, 2016 10:11 AM

**To:** Bob Tone

**Subject:** Skills Scope - Pg.28 - Missing dimensions for the wood block holders

Bob,

Page 28, the football holder diagram is missing the lateral dimensions for wood blocks?

Help. . .can you please resend those distances.

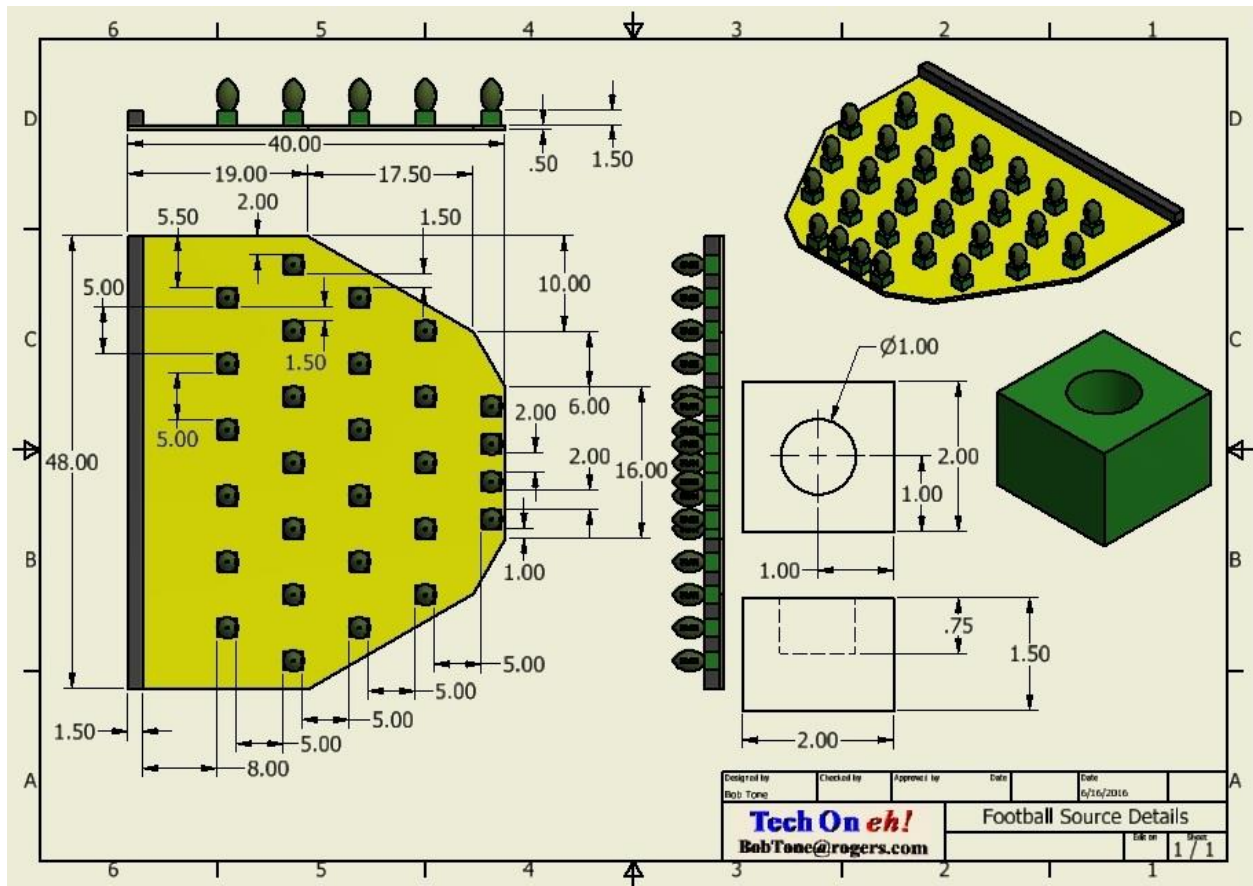
Thanks,

Dave

**Response Ten:**

Hi Dave

This revised JPG provides the info you need?



#### Question Eleven:

**From:** Peter Bondi

**Sent:** Tuesday, October 18, 2016 3:49 PM

**To:** Bob Tone

**Subject:** Starting position for Autonomous Robot

Hi sir as far as we are able to understand the scope, we cannot find a designated starting location for the Autonomous robot.

Can the robot start anywhere in the court? Or is there a specified location?

Cheers,

Peter

#### Response Eleven:

In the autonomous football game Robots will be positioned with their back against the End Zone Barrier at the mid-point of this barrier requiring the robot to travel to the opposite end of the court to retrieve their first football.

#### Question Twelve:



From: Aidan  
Sent: Wednesday, October 19, 2016 2:23 PM  
To: [bobtone@rogers.com](mailto:bobtone@rogers.com)  
Subject: 2017 Robotics Contest Football Platform

Hey Bob,

It's Aidan from Eden high school. I was reading the scope and on page 22 of 36 it says that " The Football Source Platform is 0.75 In. Thick Plywood Sheet"  
But on page 28 of 36 it says on the Football Source drawing that the plywood platform is 0.50 inches thick. We have decided to build it out of 0.5 inch thick plywood.

Let me know which one it is please.

Thanks, Aidan

**Response Twelve:**

0.5 in. is the correct measurement but teams need to keep in mind the scope sets a tolerance of 0.5 in. so a 0.75 in. base board would fall within this expected tolerance range.

**Question Thirteen:**

**From:** Mike McBrien  
**Sent:** Sunday, October 23, 2016 3:09 PM  
**To:** [bobtone@rogers.com](mailto:bobtone@rogers.com)  
**Subject:** Clarification - Autonomous Competition

Hi Bob. I'm sorry to bother you, but I've read the Robotics Skills Scope document, and there was something that I could not decipher. With regards to the autonomous competition, it's not clear how the "game" proceeds between two teams. Are both teams' robots on the floor at the same time? Are there two courts and they are competing at the same time in two different courts? Or are they sequential games where one team has the floor and then the other team has the floor?

Best,

Mike.

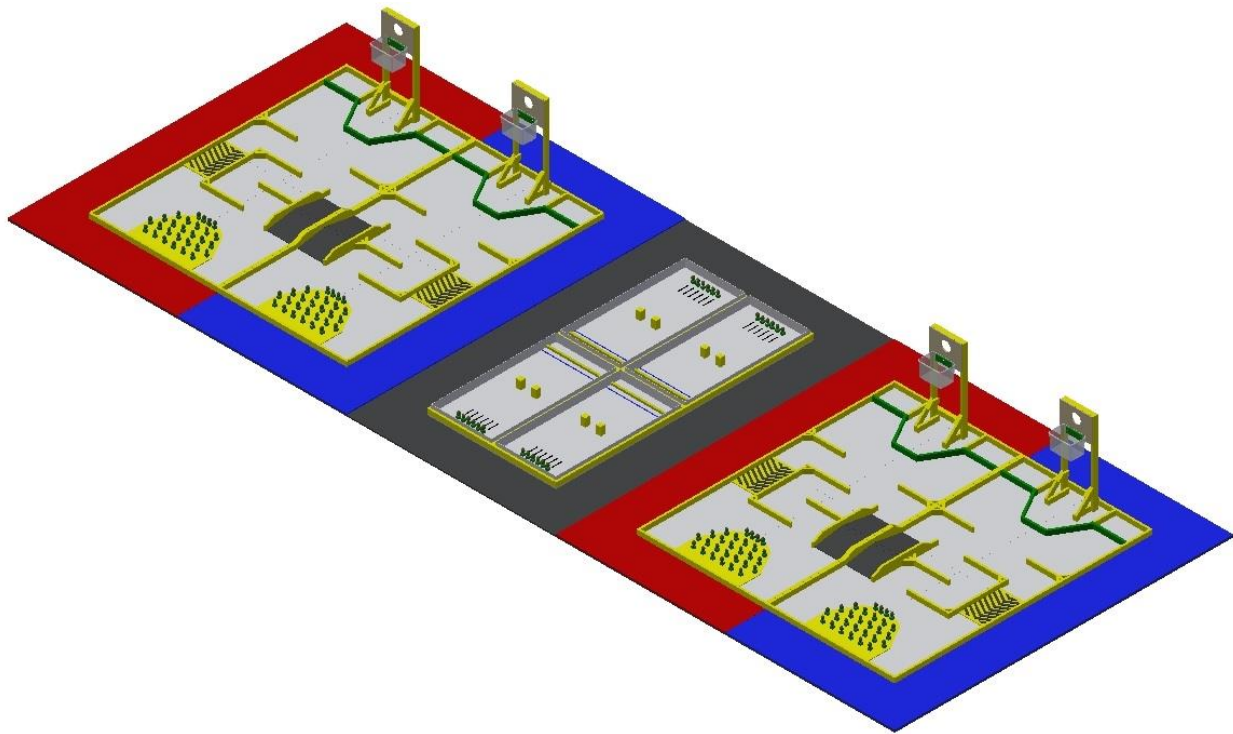
**Response Thirteen:**

Hi Mike

There will be Eight Teams in play each time we run 'A Game'.

All 8 teams will have their own exclusive use space. See image below.

Teams need to be prepared to have both their tele-operated entry and their autonomous entry either called to the court at the same time or different times.



**Question Fourteen:**

From: Aidan  
Sent: Monday, October 24, 2016 1:21 PM  
To: Bob Tone  
Subject: Re: 2017 Robotics Contest Football Platform

What is the Bumpy Road material supposed to be?

**Response Fourteen:**

Strips of half inch thick plywood

**Question Fifteen:**

**From:** Conner Tenn [<mailto:conner.tenn@gmail.com>]  
**Sent:** Thursday, October 27, 2016 10:07 PM  
**To:** [bobtone@rogers.com](mailto:bobtone@rogers.com)  
**Subject:** Robotics Competition Questions - Radio Transceivers

Greetings Mr Tone.

On behalf of the St. Francis Xavier Robotics team, I would like to inquire about the possibility of utilizing a 3rd party radio transceiver, operating within the 866MHz to 915MHz band. The specific model is the "rfm 95/96 LoRa radio module". We believe that utilizing this as opposed to a standard 2.4GHz radio will

provide maximum range and minimal interference as well as provide lower level control over data transmitted. My question is whether or not we are allowed to incorporate this module into our design as the main radio communications device.

Thank you,  
The St. Francis Xavier Robotics team.

**Response Fifteen:**

**YES** your team can use the radio identified in your question.

**Question Sixteen:**

**From:** Peter Bondi  
**Sent:** Friday, October 28, 2016 5:14 PM  
**To:** Bob Tone  
**Subject:** Restriction on amount of footballs carried by autonomous robot

For absolute clarification sir, both the Tele-operated game and the Autonomous game allow each robot to carry **only** my one football at a time, correct?  
Thanks for the clarification,  
Peter

**Response Sixteen:**

**YES**

**Question Seventeen:**

**From:** BRYAN CHINA  
**Sent:** Monday, October 31, 2016 11:10 AM  
**To:** Bob Tone  
**Subject:** Questions from British Columbia

Hi NTC,

"Teams may also have independent autonomous elements as part of their entry. These elements may possess only one football at a time each and these footballs do not count against the or team's maximum two footballs at a time limitation"

- 1) Are participants allowed to have 4 robots. Two tele-operated, and two autonomous?
- 2) If the autonomous element is a part of the tele operated robot, would it still be allowed to hold a football whilst the tele operated robot is in possession of one?

Thanks,

Bryan China

**Response Seventeen:**

- 1) Unlimited amount of robots are allowed on the field as long as the complete entry as a group can fit within the 4 cubic feet size limitation at the beginning of the match.
- 2) No, the autonomous element must be completely separate from the tele-operated robot for it to not count towards the football limitation.

**Question Eighteen:**

From: BRYAN CHINA  
Sent: Thursday, November 3, 2016 5:08 AM  
To: Bob Tone;  
Subject: Another Question

Hello NTC,

A team has asked if we could clarify the definition of "Possession". They would like to use a shallow plow to help steer the footballs into an intake device. If they were to have more than one football within the bounds of their plow, but only one in the intake device, would this be considered in possession of more than one football?

Thanks,

Bryan China

**Response Eighteen:**

There is no rule specifically stating you cannot have a 'Plow Like Device'. However, if you are able use your plow to manage the movement of either a single or multiple footballs at the same time to the point that you can steer / control the movement / deliver that single or those multiple footballs to a pre-determined specific location then you are 'In Possession' of that single or those multiple footballs.

This is **allowed in the case of a single football** being controlled by the plow given you have a single football being managed / moved deliberately by your plow which is in compliance with rule that your robot can only possess one football at a time.

This is **NOT allowed in the case of 2 or more footballs** being controlled by the plow at the same time.

Two related concerns are:

\* A 'Plow Device' has significant potential to damage the 'Tees' in the original start of the game area where the footballs are located.

\* Unfortunately, depending on a Team's overall solution design we will require the referee to make a judgement call whether the action of the robot is asserting deliberate control over the ball on the floor, or, accidental and not asserting deliberate control over the ball on the floor when a loose football or multiple footballs on the court floor is / are being moved simply by the fact the robot's frame is hitting the ball when the robot is moving.

**Question Nineteen:**

**From:** Dimonte, Marco (Francis Libermann)  
**Sent:** Friday, November 4, 2016 12:01 PM  
**To:** Bob Tone  
**Subject:** robot chassis

Hi Bob. Am I to understand that we will be able to use a chassis from a radio control car given the fact that vex and Studica sell these types of robot kits ?

**Response Nineteen:**

Yes, Teams are allowed to use this type of equipment.

Rationale: We are striving to expand the participation base and this is why we have opened up the range of allowed equipment.

Will off the shelf equipment in their straight out of the box condition win? No!!!

R/C vehicle are designed for big spaces. We are competing on a relatively small space. R/C vehicles are really light and are not designed to carry a load. Putting an arm in the box of the truck might look cool, but will not work well.

Off the shelf equipment will require modifications to have a realistic potential to win this competition.

**Question Twenty:**

**From:** Cyrus Fattahi  
**Sent:** Wednesday, November 9, 2016 3:43 PM  
**To:** [bobtone@rogers.com](mailto:bobtone@rogers.com)  
**Subject:** 28TH SKILLS ONTARIO COMPETITION

To whom it may concern,

My name is Cyrus Fattahi and I am from Western Technical Commercial School. We have a couple of questions about the Skills Canada 2016-17 competition. We were wondering if the pedestals that the mini footballs are movable, or if they were fixed to the ground. We were also wondering if you can have 2 robots on the field at once during the tele-op stage.

Thanks,

Cyrus Fattahi

**Response Twenty:**

Hi Cyrus

The football pedestals are fixed in place and you cannot make any effort to move them.

Teams can have 2 robots as long as at the start of the game they are positioned in a manner that enables their combined size to fit within the allowed total team entry size allocation of 4 cubic feet.

**Question Twenty One:**

**From:** GEETHA NAIR

**Sent:** Wednesday, November 16, 2016 10:28 AM

**To:** [bobtone@rogers.com](mailto:bobtone@rogers.com)

**Subject:** Skills Canada Robotics

Hi Bob

I am the teacher coordinator for Pickering High School Robotics club. While reviewing the scope, some questions came up and I am forwarding them to you. Please clarify.

1. Can a cellphone be used as a controller?
2. Can we use Arduino or Raspberry pi as controller?
3. Can a laser be used for aiming?

Thanks

Geetha Nair  
Pickering High School

**Response Twenty One:**

Hi Geetha

YES you can use a cell phone as a controller in the tele-operation football game.

YES you can use an Arduino or Raspberry pi as a controller either in conjunction with your tele-operation unit in the tele-operation football game or as the primary controller in the autonomous football game.

The use of Lasers is definitely NOT allowed.

**Question Twenty Two:**

**From:** Katelynn Buchanan

**Sent:** Tuesday, November 22, 2016 12:30 PM

**To:** [bobtone@rogers.com](mailto:bobtone@rogers.com)

**Subject:** motor over-powering

Hello Bob,

My name is Katelynn Buchanan, and I am from Bluewater's John Diefenbaker Senior School. I am a member of JDSS's Skills Robotics team, along with Alex Sharpe. We had a few questions regarding this year's scope and wanted to insure that emailing you is the appropriate method of communication to get these questions answered.

At this point in time, our most significant question is to do with over-powering motors. In the 2015 scope, there was a rule stating, "motors not over-voltaged by more than 50% (a 12V motor can be run at 18V)." However, in this year's and the previous year's scope there was no mention of this rule. We are curious if this rule is still in place or if it has been modified or removed.

Thank you for your time and we hope to hear from you soon,

Katelynn Buchanan and Alex Sharpe.

**Response Twenty Two:**

Although, it is a great idea to keep to the manufacturers ratings. Manufacturers are trying to keeping a motor working well for a long period of time without being damaged. Therefore the amount of voltage delivered to a motor is a Team Decision and not the subject of a specific rule.

**Question Twenty Three:**

**From:** Brant Churchill

**Sent:** Friday, November 25, 2016 12:25 PM

**To:** Bob Tone

**Subject:** Robotics

Hi just trying to build our robotics arena and have run into a couple issues

First the size you have on one drawing for the ramp says the board for the ramp should be 20x19.85 but that would be the horizontal measurements. I believe it should be 20x20.15 for the deck.

Second: What is the angle/ dimensions for the ruff plate. The diagram says the width but not the angle.

Thanks

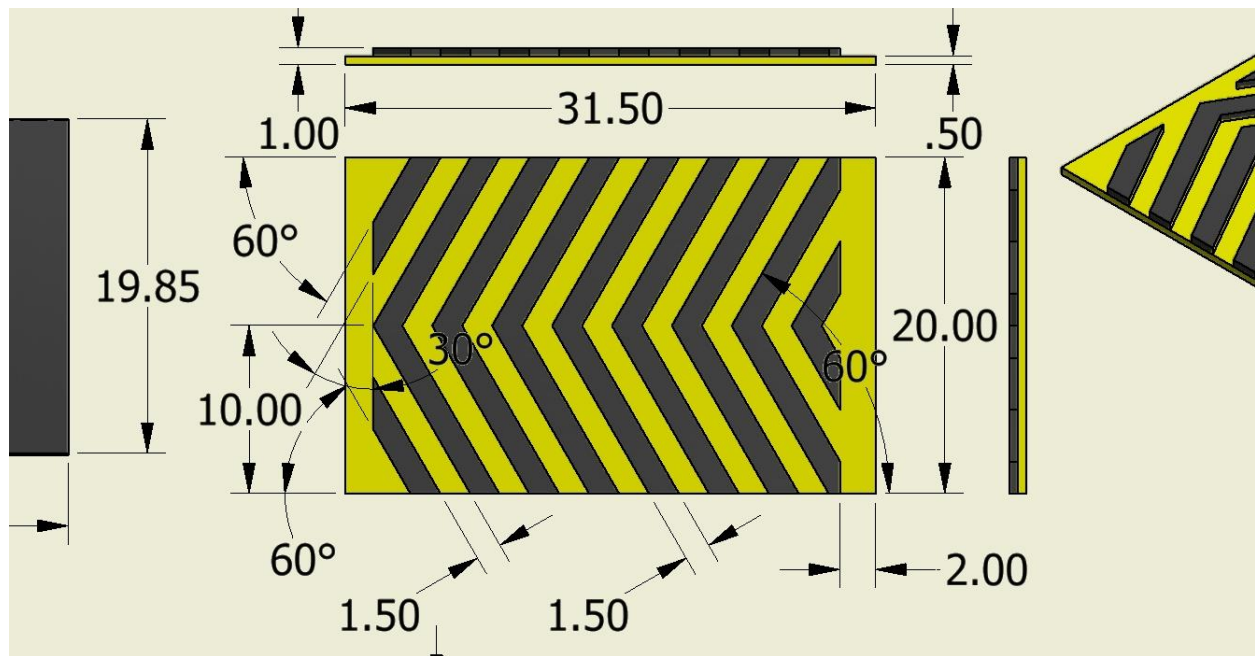
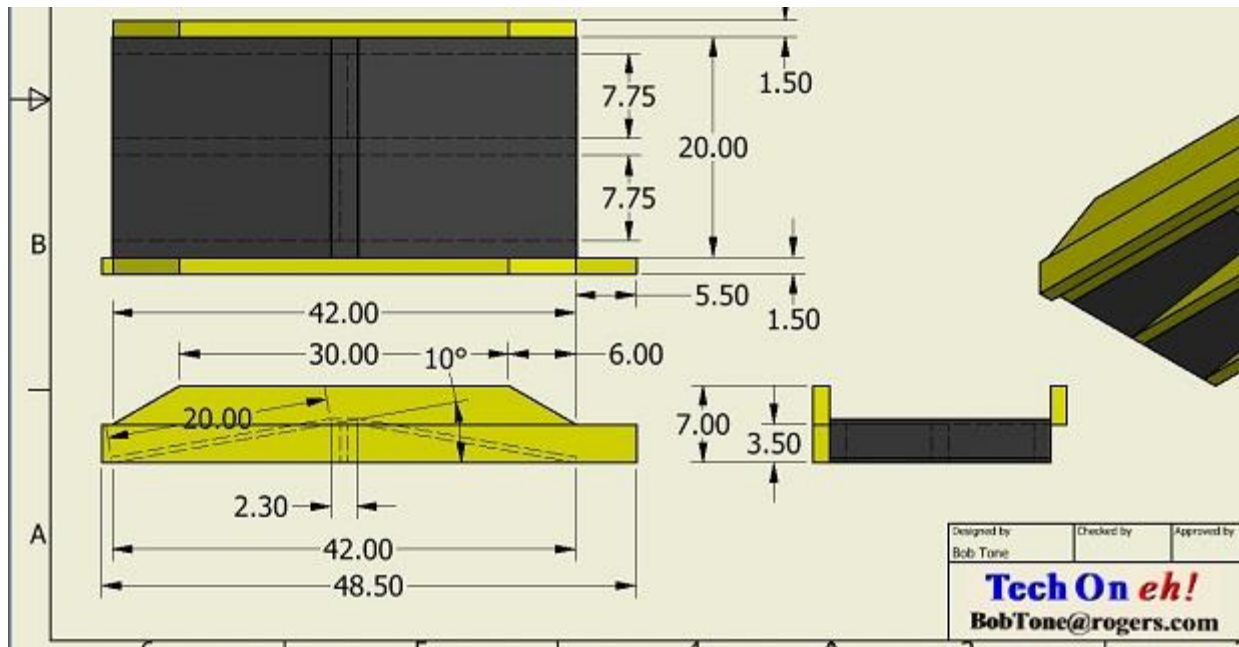
BRANT

**Response Twenty Three:**

Hi Brant

The Ramp Angle in question is 10 degrees.

The functional dimension for the ramp top is 20 by 20 with the measure along the slope being a rounded off number.



#### Question Twenty Four:

**From:** Michael Jiang

**Sent:** Tuesday, November 29, 2016 3:02 PM

**To:** [bobtone@rogers.com](mailto:bobtone@rogers.com)

**Subject:** SKILLS Ontario Robotics Question

Hi Bob,



My name is Michael Jiang and I am a representative of the Unionville High School Robotics Club. For this year's robotics Football competition, we were wondering if we are allowed to compete with a robot that has both tele-operated and autonomous functionality. This way, we would be able to use the robot for the tele-operated competition, and for the autonomous competition, we would disable the tele-operated functionality and run the autonomous functionality.

Best,  
Michael Jiang

**Response Twenty Four:**

Hi Michael

The dilemma you would face is how will you compete if your team is required to be on both courts at the same time.

I will timetable tournament play to try and avoid this situation but cannot guarantee it will not happen in tournament play and most certainly cannot guarantee it will not happen once the playoffs start in both categories.

**Question Twenty Five:**

**From:** Cameron Simpson  
**Sent:** Wednesday, November 30, 2016 10:35 AM  
**To:** [bobtone@rogers.com](mailto:bobtone@rogers.com)  
**Subject:** Question

If we are allowed 2 remote controlled robots can we have 1 remote controller per robot at the same time during the match.

**Response Twenty Five:**

There are no restrictions regarding the role you assign to court side competitors.

YES BOTH competitors can operate a radio each and both competitors are free to move about within their Team's assigned driver's space.

**Question Twenty Six:**

**From:** Brant Churchill  
**Sent:** Thursday, December 1, 2016 4:37 PM  
**To:** Bob Tone  
**Subject:** Skills clarification

Hi Bob,

If the football lands in the ground zone but bounces out the back is it still scored?

Thanks

Brant

**Response Twenty Six:**

Hi Brant

NO points will be awarded for balls that bounced out of the End Zone.

The ball must be in the End Zone Scoring Area when the game ends.

**Question Twenty Seven:**

**From:** JOSHUA S.1. MARTENS

**Sent:** Friday, December 2, 2016 11:22 AM

**To:** [bobtone@rogers.com](mailto:bobtone@rogers.com)

**Subject:** Robotics contest question

Hello Bob,

My name is Joshua Martens from Eden high school robotics. In regards to the team start zone (pg 13) it shows the start point but does not go into detail. I am not sure if the robot has to start butt up against the end zone and right up against the sides or not. I was wondering if we could have the robot angled out towards the middle of the course to start out? Also if we have two robots, how do we start out? Can we have one leading off of the other one instead of the wall? Can we spaced them out a bit? Thanks for taking your time to read this and love to hear back for you.

-Joshua Martens

**Response Twenty Seven:**

Hi Joshua

The robot needs to be in the corner starting location.

The orientation of the robot is a team decision: up against the end zone wall, parallel to the side wall or on an angle relative to the corner.

Regarding having two robots:

- A Team's overall entry must be in compliance with the maximum 4 cubic feet total team entry size restriction at the start of the game.
- If you have two robots they CANNOT be positioned apart from one another if this causes them to violate the maximum 4 cubic feet total team entry size restriction

**Question Twenty Eight:****From:****Sent:** Wednesday, December 7, 2016 11:15 AM**To:** [bobtone@rogers.com](mailto:bobtone@rogers.com)**Subject:** Skills Robotics Clarification Request

We noticed the FAQ are up, there was one question in particular that has really bothered my team. I've pasted the question and response below my question.

The rules quite clearly state that teams may have autonomous elements. This should mean that a robot operating autonomously (completely independent of tele-op control and unattached to tele-op robot) should be able to obtain and hold a second football. But your response to the question seems to contradict the wording of the scope document. Could you please clarify? If autonomous doesn't really mean autonomous, then what is an example of something that does qualify?

**Response Twenty Eight:**

Hi Michael

The premise is a team may have two tele-operated robots collecting footballs and each of these tele-operated robots can be in possession of one football at a time.

It is also possible that a team may have a completely autonomous shooter unit that the robots move into place (given the complete team entry must comply with the 4 cubic feet size restriction at the start of the game).

The tele-operated robots retrieving balls will not have to wait for the shooter unit to take a shot before they can collect a new ball.

**Question Twenty Nine:****From:** Artur Kuramshin**Sent:** Tuesday, December 13, 2016 10:03 PM**To:** [bobtone@rogers.com](mailto:bobtone@rogers.com)**Subject:** 2017 Robotics Contest

Hello, I am contacting you on behalf of my robotics team and our question is:

Could you verify if a magnetometer/compass will work in the tournament arena anywhere between 10 and 60 cm above the floor?

**Response Twenty Nine:**

Hi Artur

Yes your team can use a magnetometer/compass.

However, your team must understand they are fully responsible for the performance of all of their equipment in the provided environment. The organizing committee has no control over nor can we predict the exact environmental features that will be present in the display hall.

Sure it may work.

The compass sensors are very sensitive to interference, since the team will have never been in the space before there is no way of confirming any electric cables/magnetic objects. The sensor may also be susceptible to the electric fields caused by the relatively high amount of current drawn by motors so robot design has a lot to play in this as well. All we can say is that they are welcome to use the sensor however they should be prepared and design for an alternative if it does not work.

**Question Thirty:**

**From:** GEETHA NAIR

**Sent:** Thursday, January 5, 2017 3:40 PM

**To:** Bob Tone

**Subject:** Re: Skills Canada Robotics

Hi Bob,

Happy New Year!!

Please answer the following questions from my team members

1. Does the game element need to be carried to the end point? Can it be thrown or launched into the goal?
2. How long does the game element need to stay in the end zone? Is scoring done at the end or is it counted as field elements make it to the end zone?
3. What height are the walls of the enclosure? How tall are the walls of the maze? Is there anything behind the "net" that would stop a ball from being thrown out?

Thank and Regards

**Geetha Nair, OCT**

Computer Engineering Teacher

Pickering High School

**Response Thirty:**

Hi Geetha

- 1) It is team decision how they deliver a football into the Hail Mary Hole, the Receiver's Bucket or the End Zone Floor. They can drop it or throw it.
- 2) Balls must be in the scoring locations at the end of the game. Note: A fine mesh net will be added to catch all balls that pass through the Hail Mary Hole.

3) The perimeter walls of the court are 2 by 4's laying on their 1.5 inch sides.

**Question Thirty One:**

**From:** Adam Pedzikiewicz

**Sent:** Saturday, January 14, 2017 2:43 AM

**To:** Bob Tone

**Subject:** Re: Autonomous component inquiry

Good morning Bob,

We here at Michael Power were wondering about the regulations regarding the autonomous robot: the scope says we can use "onboard sensors", but what is "onboard"? Can our robot place a sensor on or outside the field and leave it there for wireless guidance purposes? Could such a sensor be placed by hand before the round begins?

The off- court device might be, maybe two RFID transmitters in opposite corners of the field. The distance from each can be used to determine the robots location on the field. There would be no connection to a laptop etc. off the field.

We were also wondering about how the robot is placed on the playing field- Where is it placed? Does the team place it there or does the judge place it there?

Thanks!

Adam

**Response Thirty One:**

Hello Adam

Unfortunately, the answer is you cannot use the RFID transmitters given:

- It involves either team equipment being outside the 4 cubic foot limit at the start of the game, or, requires teams to touch . move / position equipment after the game starts if they place it inside the available 4 cubic foot space at the start of the game and competitors are not allowed to touch their robot once the game starts and the RFID transmitters would be considered part of your robot if they were allowed.
- It involves allowing a team to customize the court environment when all teams are expected to work within a common set of court parameters.

Regarding your question about where the robot starts the answer is at the center of the end zone front board to make it necessary for the robot to travel the length of the court to retrieve the first football.

**Question Thirty Two:**

**From:** Peter Bondi  
**Sent:** Saturday, January 14, 2017 9:20 PM  
**To:** Bob Tone  
**Subject:** Autonomous Robot Restrictions

Hi Sir, we at Michael Power were wondering whether the autonomous robot is allowed to be a stationary one. There are a multitude of ways whereby a stationary robot is just as capable as its mobile counterpart, and the scope makes no mention of this possibility.

Cheers,  
Peter

**Response Thirty Two:**

Hi Peter

Your autonomous robot needs to start the game in front of the end zone at the side to side mid-point along the face of the end zone.

Here in Canada the competition is called robotics so you are right in your observation a solution involving a stationary robot would be allowed.

There is NO size restriction applied to the autonomous robot in the 'Autonomous Robots Only Football Game'.

**Question Thirty Three:**

**From:** Peter Bondi  
**Sent:** Saturday, January 14, 2017 9:58 PM  
**To:** Bob Tone  
**Subject:** RE: Autonomous Robot Restrictions

**Response Thirty Three:****Question Thirty Four:**

**From:** Peter Bondi  
**Sent:** Saturday, January 14, 2017 9:58 PM  
**To:** Bob Tone  
**Subject:** RE: Autonomous Robot Restrictions

**Response Thirty Four:**

**Question Thirty Five:**

Why does the total of the marks listed on page 10 of the 2017 scope add up to 110 when the stated total is supposed to be 100?

**Response Thirty Five:**

A Skills Ontario 2017 Robotics Scope Edit is required. On page 10 the Total Judging Criteria is listed as being Out of 100. However the displayed set of marks adds up to 110.

The Mark displayed for the 100% Autonomous Football Game is 25 marks which is **INCORRECT**.

**The Total Marks for Tournament Play in the Autonomous Football Game is 15 Marks.**

**Question Thirty Five:**

**From:** Boucher, Justin  
**Sent:** Thursday, January 19, 2017 9:01 AM  
**To:** bobtone@rogers.com  
**Subject:** Questions

Is there any question summary this year?

Another comment: The fact that we allow 2 robots + an autonomous one is really hard for High school. It's very expensive to make 3 robots and it's really more challenging than doing one robot like before.

I'm not even sure the CSDCCS will be able to compete as we don't have any autonomous parts and our budget is already gone.

**Response Thirty Five:**

Hi Justin

Yes Justin there is a questions / responses summary posted to SkillsOntario.com in the scopes section.

The autonomous robot element was added to the Ontario Competition given an autonomous component has been added at the National Competition and we need to ensure the Ontario Team advancing to Winnipeg is prepared for both a tele-operation and an autonomous operation experience.

I do understand that changes to the competition format has the potential to impact team budgets, a few teams have reported to me the reduction to 4 cubic feet (something done to help ease the issues associated with transporting robots across the country to the National Competition) resulted in teams no longer able to use large motors / wheels which they have reused for years.

Adding the autonomous element is something welcomed by schools given it brings a new to our teams but already present in our schools involvement by students in the Computer Science departments. In addition it provides an incentive for teams to explore new areas of learning

I hope your school is able to continue as a participant.

**Question Thirty Six:**

From: Marc Fillion  
Sent: Thursday, January 19, 2017 1:28 PM  
To: Bob Tone  
Subject: Robotics Question...

Hi Bob,

This question relates to the autonomous robot.

Question: Is the robot chassis allowed to break the plane formed by the walls vertically around the course. An example of this would be as the robot nears either end of the course, an arm or part of the robot might stick out over the edge of the course. Is this allowed?

Thanks!=

**Response Thirty Six:**

Hi Marc

YES your robot in the autonomous football game can have a part of the robot extend out over the court perimeter walls.

At the Ontario competition the 4 autonomous football game courts will be placed with a minimum open space of 0.5 to 1.0 meters around all four sides of each court to ensure there is no robot to robot interference experiences during game play.