ABU ROBOCON 2015 YOGYAKARTA - INDONESIA

FAQ (Frequently Ask Questions) 13-December-2014

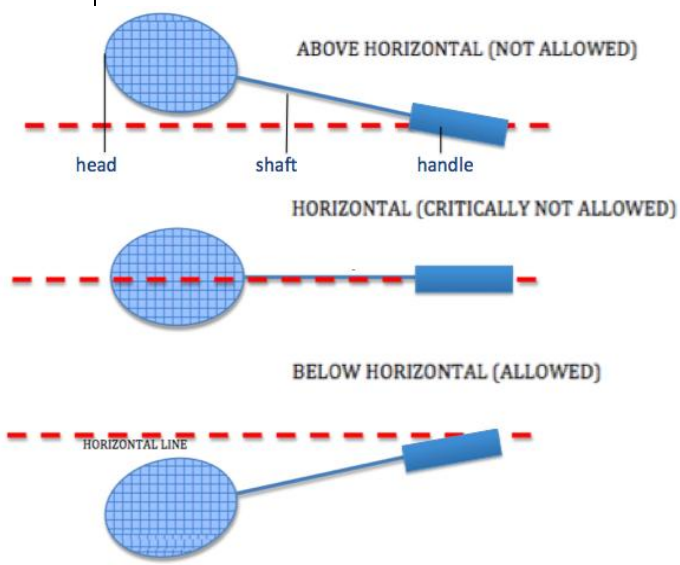
CATEGORY OF QUESTIONS		
CATEGORY	DESCRIPTIONS	
A	Common Question, website, etc.	
B	Team	
C	Role of Game	
	C1	Role of Play, Time out, Scoring
	C2	Service/ Shuttle Cock
	C3	Operator
	C4	Contest Field
D	Robot	
	D1	Racket
	D2	Structure/Design of Robot
	D3	Sensors/Controller
	D4	Communications
	D5	Voltage/Power Source
E	Packing and Miscellaneous	

Type	Q-No.	Questions	Official Answers
A	**1**	What's Robocon2015's homepage?	http://robocon.tvri.co.id/
B	**1**	I want to know about the maximum number of students that can participate in Robocon in one team.	6 (3 official team members, 3 pit crews) are allowed to officially participate in ABU Robocon2015. The other person(s) from the same university can be registered as "university observers".
B	**2**	How many members will get the certificates?	Only 3 (main) team members, 3 pit crews,1 instructor will get the certificates.
C1	**1**	In the official video in the website said that "The match lasts for 3 minutes" and in the rule book there are no text for time?	The three minutes are just for prediction in average.
C1	**2**	What is the procedure for retry?	There is no retry, but instead each team can use one Time Out per game.
C1	**3**	<4.3.5. preloading shuttle(s)> There are 6 shuttle so is it for Single robot or both can use 3 shuttles?	A team will get total 6 shuttles for a game. Team can decide how many shuttles to preload to each robot. (Refer Rule 4.2)
C1	**4**	<hitting a shuttle> Is there a limit to how high the shuttle can go?	It is not limited, but however it depends on the height of the venue (more than 15 meters)
C1	**5**	<hitting a shuttle> Is there any restriction on the height from which the service must be done	There is no restriction on it.
C1	**6**	<hitting a shuttle> Can shuttle touch the net during a rally or course of game? i.e. when service is successfully returned ?	Yes, it can.
C1	**7**	<hitting a shuttle> Is it required every time to drop shuttlecock in yellow drop zone for points?	No, the dropping shuttle to the yellow drop zone is a mandatory for the service only, not for after.

C1	**8**	<4.5.7. 15seconds> In theme and rules 4.5.7, can team members help the robots to preload shuttle every service if the robot is not designed automatically?	Yes, it is allowed. You can also preload the shuttle(s) within setting time and timeout.
C1	**9**	<4.5.7><4.7> Is it allowed to maintenance the robot(s) in "15 seconds(4.5.7)" and timeout? E.g. changing batteries, supplying compressed air, tightening screws and spring, rewriting the program data, modifying the communication line of its robot(s) （from wireless to wired, or vice versa）	It is allowed. But however, referee will not wait if the time is over to continue the game.
C1	**10**	<4.5.7 15seconds><4.7. timeout> Can the **receiver team** member also enter the contest field, maintenance their robots and preload shuttles in **"15 seconds**" and **timeout**?	It is allowed.
C1	**11**	<4.7 timeout> What happens if team does not have any timeout left and the robot goes out of control?	The team has only within 15 seconds to maintain the robot(s) at every point scored. Otherwise, that robot(s) must be remained stay at the contest field. Referee will not wait.
C1	**12**	<6.1 role of robots> Can one of the robots be kept stationery throughout the game using the other robot only for play?	It is allowed.
C1	**13**	<6.1 role of robots> Is it necessary for both robots to have a service delivering system?	At least one robot is able to serve a shuttlecock.
C1	**14**	<6.1 role of robots> Do we need to declare which robot will give a service before hitting the shuttle?	You don't need to declare it. You can choose which robot gives a service depending on the situations.
C1	**15**	<6.1 role of robots> Do we need to declare which robot will receive service before the opponent team gives service?	You don't need to declare it.
C1	**16**	<6.1 role of robots> Is it mandatory that only one robot should return the service, or can both the robots attempt returning the service?	It is allowed for both robots attempt to return the service but the legal one is only one racket hit the shuttle.

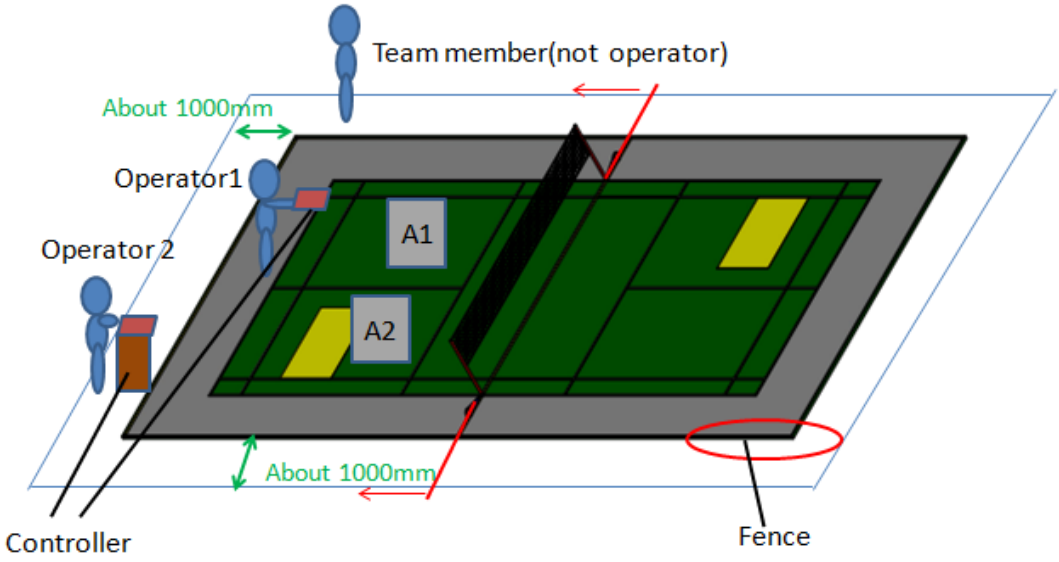
C1	**17**	<6.3> Can the robots touch each other during the game?	The robots in a team can touch each other But It is not allowed before the service-robot hits the shuttle.
C1	**18**	<6.3> If the two robots can grab each other after the start of the competition, so that they can move synchronously is that allowed? Just like two carriage of the train.	It is allowed AFTER the service-robot hit the shuttle.
C1	**19**	<6.3> Can one robot climb on top of the other?	It can AFTER the service-robot hit the shuttle, (It can't be placed on during the setting time, 15 seconds, and timeout.) And the total height of the robots must not exceed 1500 mm.
C1	**20**	<9.violations and disqualifications> Will it be considered as a violation if some part of robot falls off?	It will lead to disqualification if it happens intentionally and damages the field. Referee committee will take final decision at that instant.
C1	**21**	<9.violations and disqualifications> If we break or transform the rackets by accident, Is it regarded as disqualification or violation?	No, it is not a violation as long as **NOT DETACHED** from the robot.
C1	**22**	<9.violations and disqualifications> Are we allowed to use wind to blow the shuttle?	It is not allowed to use wind to blow the shuttle. The shuttle must be hit by using the string of the racket. You can use air-compressor and fun if they don't carry over into shuttles.
C1	**23**	<score> Consider team A and team B, Case: team A has the service, team A serves , the shuttle hits the body of the robot of team B and it falls in their side (team B side) excluding the drop zone. so which team will get the point?	Team A gets the point.
C1	**24**	<score> Consider team A having robots A1 and A2 also team B having robots B1 and B2, Case: robot A1 serves, robot B1 receives the service, then robot A1 hits back the shuttle and team B cannot return the shuttle. So who will get the point?	Team A gets the point.
		In this case, can robot A1 serve and play the next shot also?	No, the next turn of service is Team B.

C1	**25**	<4.6.2_score> In case of 4-4 points in a match, the team scoring consecutive two points will win the match or team achieving 6 points first will win the match?	The team scoring consecutive two points will win the match.
C1	**26**	<4.6.3.2_score> In case of point 4.6.3.2 what do you mean by successful service? If a team serves & the serve is returned by opponent team then is it considered as successful service?	Successful service means that (1) The serviced shuttle landed at yellow drop zone. (2) The case that the receive-robot failed to hit back the serviced shuttle.
C2	**1**	<4.4. service> When delivering a service, does the robot which drops the shuttle, and the robot which hits the shuttle need to be the same?	Yes it does.
C2	**2**	<4.4 service and hitting shuttle> Are these allowed? To keep the shuttle by putting the shuttle between racket-strings. To hold the shuttle between two rackets. To put the shuttle on a racket.	No, they are NOT allowed.
C2	**3**	<4.4 service and hitting shuttle > For the service, is it mandatory that a racket hit the shuttle and serves? Can we use some other mechanism that can directly launch the shuttle for service without using the racket like pneumatics etc.?	Yes, it is mandatory not only for service but for all shuttle hitting. Only racket may hit the shuttle in the game.
C2	**4**	<4.4 service and hitting shuttle > Is it allowed to hit the shuttle with parts of a racket excepting racket-strings? (For example, shaft, handle and so on)	It is NOT allowed. But however, the shuttle **may touch the frame** of the string during hitting.
C2	**5**	<4.4 service and hitting shuttle > When delivering a service, is it allowed to hit plural shuttles?	It is NOT allowed.
C2	**6**	<4.4 service and hitting shuttle > Can the robot initially hold the feathers of cock before service??	Yes, it can.
C2	**7**	<4.4.2_service> "within 5 seconds from the referee's whistle" means (a) or (b)? (a) from the moment the referee blows whistle to the moment the robot starts to fall the shuttle, (b) from the moment the referee blows whistle to the moment the dropped shuttle touches the racket.	(b)

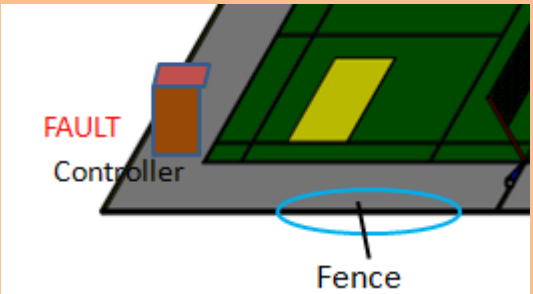
C2	**8**	<4.4.4. service> Can both robots be in the same zone while serving?	It is allowed. かまいません。
C2	**9**	<4.4.5 service> Is pushing shuttle towards racket at the time of serving allowed?	It is NOT allowed. Initial velocity should be 0(zero).
C2	**10**	<4.4.5 service> When the robot drops the shuttle to deliver a service, does the shuttle need to be dropped vertically from the start, or is it all right if the shuttle is vertical in the end when it hit the racket?	As long as the shuttle drops by gravitational force and the shuttle is vertically dropped when hit it is all right.
C2	**11**	<4.4.7 service> Concerning the rule 4.4.7,what does mean " lower than horizontal"?	Lower than horizontal means that the head of racket(s) should lower than the racket's holding. Please refer to the figure below. 
C2	**12**	<4.4.7> Specifically, what timing will be regarded as the “moment” written in rule 4.4.7? From the beginning, when the racket hits the shuttle, or else?	The moment is when the racket hits the shuttle.
C2	**13**	<4.4.7 service> Can the shuttle be hit above the horizontal even if initial position of racket is below horizontal?	No, it cannot if the hitting is in the first shuttle hitting of service. But it is no problem for the next hitting.
C2	**14**	<4.4.7 service> Can the area from shaft to head of the racket be facing UPWARD HIGHER than horizontal before and after the moment the racket hits the shuttle?	It is allowed.

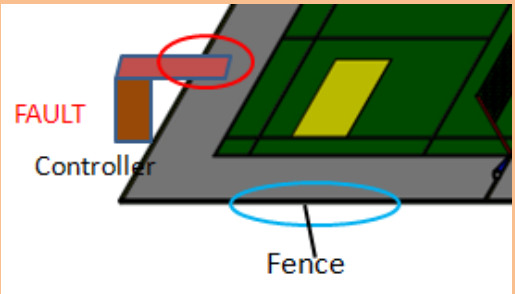
C2	**15**	<4.4.8 service> What kind a decision will be given when the shuttle touches a robot?	It will be decided as a fault and then a point is scored for the opponent.
C2	**16**	<4.4.8 service> Is it allowed that more than two rackets hit the shuttle at the same time?	It is allowed if two or more racket to try hitting the shuttle, but however the legal shuttle hitting is only if one racket (on the string) touches the shuttle. If the shuttle is touched by more than one racket when hit it is regarded as a fault.
C2	**17**	<4.4.10 service> If a robot does not receive the service, can that robot stand or move ahead the short service line?	It is NOT allowed. Robot(s) of the receiver team must stay behind the short service line before a shuttle is being served. The robot(s) can move any where in their own area after the shuttle went over the net.
C2	**18**	<shuttle> What is color of the shuttlecock?	Standard shuttle cock should be white color.
C2	**19**	<shuttle> Will the shuttle colored for easier for computer vision, if yes, what will be the color?	No, it will not.
C2	**20**	<shuttle 8.2> Is shuttle of synthetic or feather type ? What kind of the standard shuttle cock will be used?	The shuttle is feather type Based on Badminton World Federation here are the specifications of the shuttle: (1) The shuttle shall have 16 feathers fixed in the base. (2) The feathers shall have a uniform length between 62 mm to 70 mm when measured from the tip to the top of the base. (3) The tips of the feathers shall lie on a circle with a diameter from 58 mm to 68 mm. (4) The feathers shall be fastened firmly with thread or other suitable material. (5) The base shall be 25 mm to 28 mm in diameter and rounded on the bottom. (6) The shuttle shall weigh from 4.74 to 5.50 grams. If you choose a shuttle from a market please check the speed performance when it hit by racket with a full power as you can. Try to hit from the line behind of one area and travel it to the opponent area. The dropped position of that shuttle should not more than the line behind the opponent area.

C3	**1**	<6.4.1 operator and the team member> Where is exactly the operator zone when the game is playing? Can the robot operators control their robots from anywhere as long as they're not in the field? For example can they control their robots from opponent's side of the net?	You can control your robots only from your own robots game area. Please refer the figure below.
C3	**2**	<6.4.1 operator> Can operator cross the line of net from the sides (in the operator zone)?	It is NOT allowed.
C3	**3**	<6.4.2 operator> About 6.4.2., does each robot have to be controlled by only one person at maximum?	The maximum number of robot is two, so that the maximum operator is two. These two operators can be switched each other or collaborate to control the robot(s) in a game.

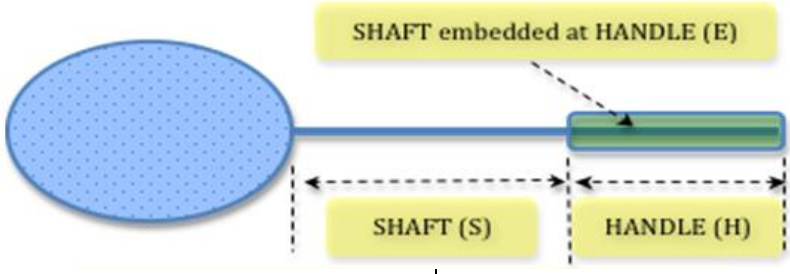


◆ Operators (Maximam2) can access the grey area and outside of the fence.
(about 1000mm from the fence)
◆Team member(s) who doesn't operate robot(s) can access **only outside of the fence**.
◆The operator(s) can enter the **space above** of the green area and the grey area.
◆The pit crews can NOT access around the contest field except for setting time.
◆Controller(s) can be **put on the outside of the fence.**
(NOT allowed to put on the grey and green area including the space above.





C4	**1**	<contest field> How does the Contest Committee ensure that the environment of the contest field resembles that of any standard badminton field, for example, in terms of wind conditions and ambient lighting?	The contest committee should prepare an international standard badminton court.
C4	**2**	<contest field> Is there a specific role for "Grey Area"?	(1) Area that robot(s) can access. But however at the beginning of a game (service and receive), the two robots should enter and stand by at their own playing area. (2) Area that operator(s) can access. ★Please refer FAQ_C3_1 (3) Area that restricted for any kind of team's tools including sensors, controllers, or power source of the robots to stay.
D1	**3**	<7.2 racket> When remodeling shaft and handle of racket is it allowed to change the dimension of the handle and shaft?	It is not allowed to change the dimension of the handle and shaft, but it is allowed to make a tighten mechanism like hole(s) and screw(s)/bolt(s)/nut(s) at the handle to ensure the racket(s) holding safety. And these mechanisms are included in the total weight of the robot(s). Refer to the illustration.



When remodeling
- ◆H and E can be remodeled: holes, screws, nuts,etc.
- ◆Length of S must not be changed.
- ◆Length of H must not be changed.
- ◆Total length (S + H) must not be changed.
- ◆Parts of racket modification(screws, nuts ,bolts) are included when robot(s) is measured.
- **◆When holding racket(s) S can NOT be directly touched by robot(s). The connection is only allowed at H and E.**

D1	**4**	<7.2 racket> Is it allowed to attach a racket on another racket or weld 2 or more rackets together?	It is NOT allowed. Each racket should be independently held to the robot at the handle. The illustrations below are not allowed.
D1	**5**	<7.2 racket> Is it allowed to increase or decrease the amount of the rackets and to change the fixed position of the rackets with every game?	It is allowed.

Fig1

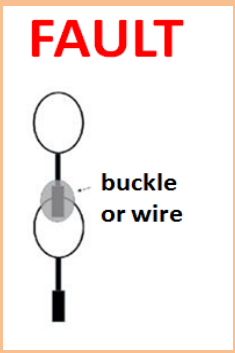


Fig2

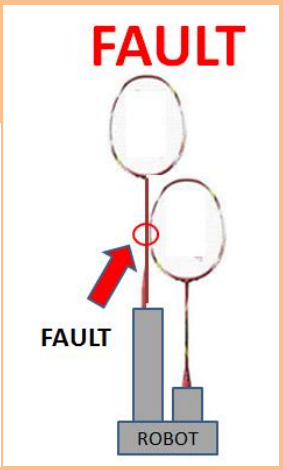


Fig3

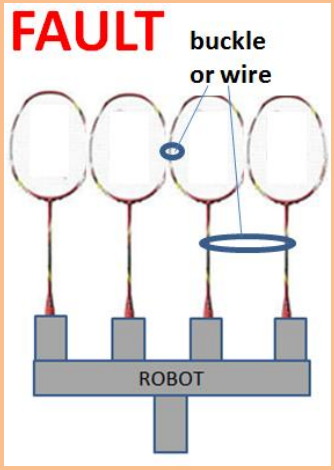


Fig4

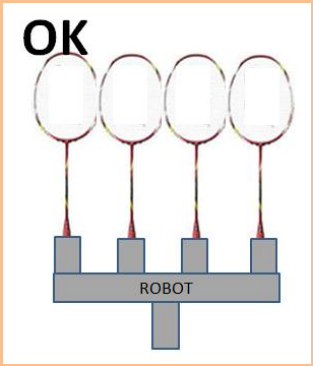
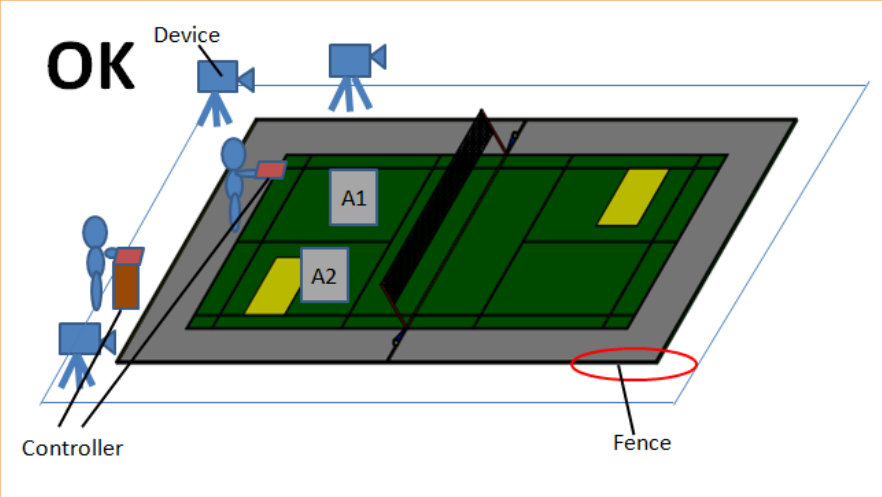
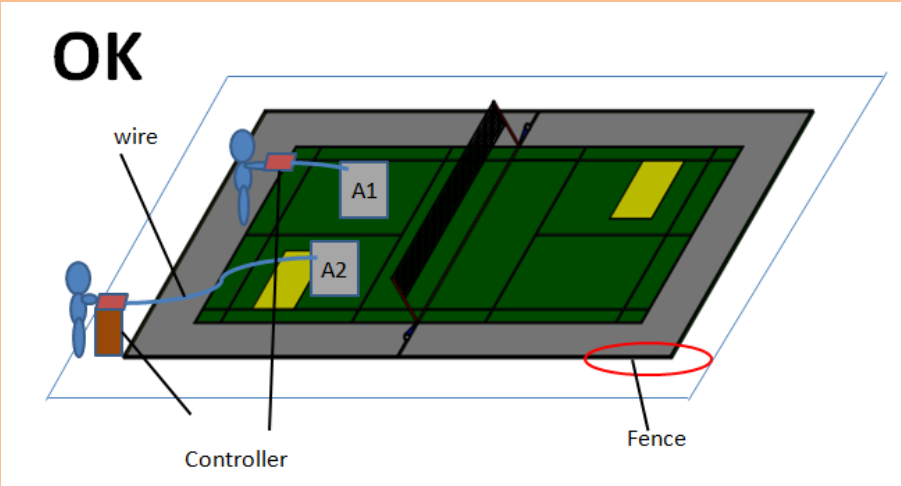


Fig5

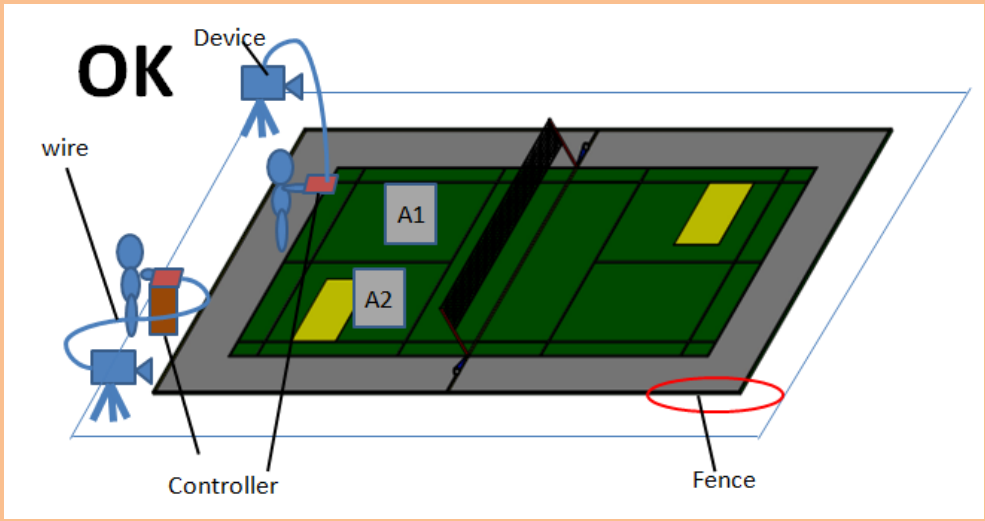
◆Fig1, Fig2, Fig 3, Fig4 are NOT allowed.
The shaft and frame can NOT be attached to robots or other rackets or any mechanisms.

◆Fig5 is allowed if robot(s) holds each racket independently without any other mechanisms .

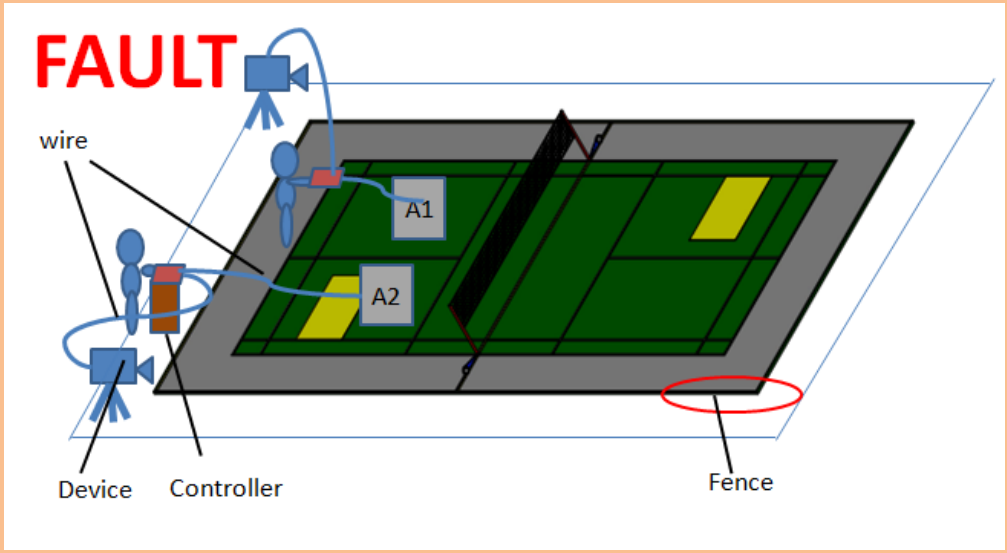
<table>
<tr><td>D3</td><td>1</td><td><sensors>
We want to ask you if we can use Microsoft Kinect as a part of the robot. We want to use Kinect as a type of controller; it will detect our movements and transfer those movements to the robot. Is this allowed? Or will it violate one or more rules.</td><td>It is allowed.</td></tr>
<tr><td>D3</td><td>2</td><td><sensors>
Can we use infrared rays to recognize shuttle or robots?</td><td>It is allowed.</td></tr>
<tr><td>D3</td><td>3</td><td colspan="2"><controller>
For the Robot which is operated by wireless module, can the operator have multiple controllers which are interlinked by wires or wireless?
Refer the below figure.
 

◆There is no limit for the number (amount),size and weight of the remote controllers as long <u>as they are wireless.</u> And you can put the device such as camera or supercomputer for recognizing images <u>at the outside of the fence.</u>
◆However they must not harm people and environment. And all controllers and devices must be ready within the setting time prior to the start of the game.
 

◆The weight and the size of <u>the wired controller(s)</u> will be considered as a part of robots when measuring.
There is no limitation for the length of the cable of the wired controllers.</td></tr>
</table>



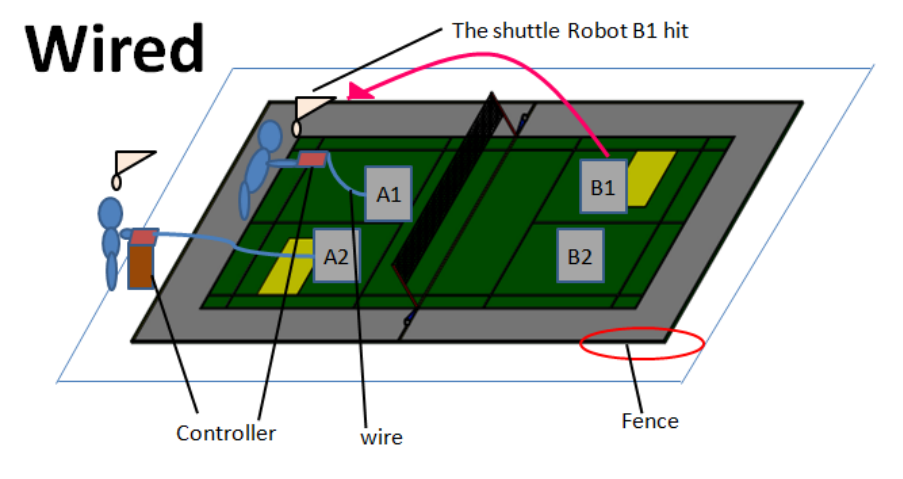
◆You can connect **the wireless controllers** with **devices**.



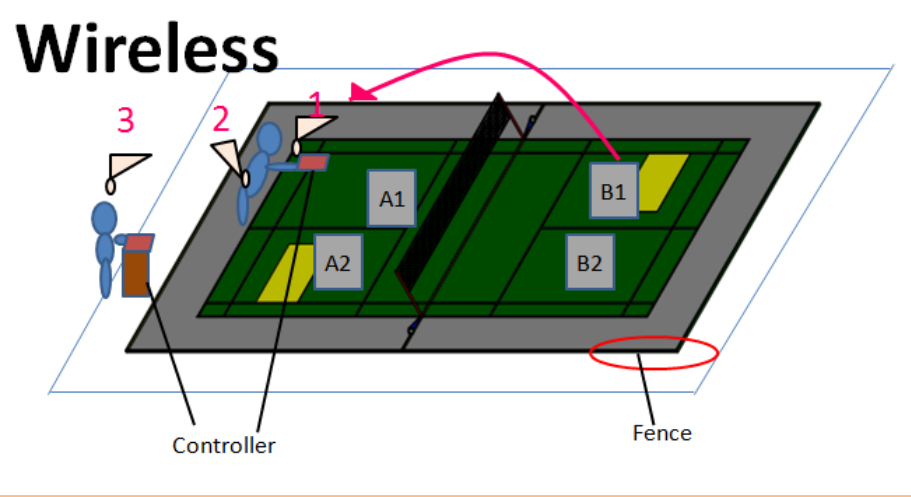
◆You can **NOT** connect controllers with devices **if the robots and controllers are connected by wires.**

D3	**4**	<controller> Can the controller and the device for recognize shuttles and robots such as camera touch the ground?	It is allowed at outside of the fence. ★Refer the FAQ_C3_1
D3	**5**	<controller> Is there any constraint on what human operators may utilize for the game? E.g. can the operators bring a super computer and/or install several cameras?	It is allowed, but however all of the controllers must be ready within the setting time prior to the game begins. ★Refer the FAQ_C3_1 and D3_3

D3	**6**	<controller> Must the operators turn _off_ their controllers (e.g. computers, cameras) _prior_ to the setting time?	It is allowed to turn on the controller, excluding the power source of the actuators, prior to the setting time. But however it is not allowed for a team to access the game field all the time except in the setting time prior to the game and 15 seconds and timeout.
D3	**7**	<Wired controller/Wireless controller /shuttle touch operator(s) > If operator is outside arena & if shuttle hit by opponent team touches him then, will opponent team gain point?	It depends wired or wireless. Please refer to the below figure.



◆ If the shuttle hit by Robot B1 touches the operators of A team, **team B** will get point no matter where the operator stands.



◆<1>
If the shuttle hit by Robot B1 touches the operator in the air space of the green area, **team B will** get point.
◆<2>
If the shuttle hit by Robot B1 touches the operator in the grey area, **team A** will get point.
◆<3>
If the shuttle hit by Robot B1 touches the operator on the outside of the fence, **team A will** get point.

D4	**1**	<6.5 communication> Is there a limit to the frequency used for communication?	The suggested channel/protocol and or frequency used for the communications in only bluetooth technology. The frequency used for it should be S-band (2.4GHz).
D4	**2**	<6.5 communication> Can Android Application in mobile phone be used as remote control for bluetooth interfacing?	It is allowed.
D4	**3**	<6.5 communication> The game rules say that we can use Bluetooth (After Ver 2.0x) for wireless communication. Does it mean that we can use the Bluetooth 4.0?	Yes, as it has the version above 2.0x. (Refer Rule 5.1.1)
D4	**4**	<6.5 communication> Can we use Zig Bee for wireless communication?	No, the method of wireless communication is limited as mentioned in rule number 6.5.1.
D4	**5**	<6.5 communication> Can we use RF link as means of communication between robot and operator OR can we use RF wireless controller to control the robot?	No. Wireless communication methods are limited to as mentioned in rule number 6.5.1.
D4	**6**	<6.5 communication> Will the contest committee take a measure of jamming radio wave such as monitoring radio wave?	Yes it will. But the committee will not give guarantee for the unsuccessful communication between robots and operators in case of interferences.
D5	**1**	<4.3.2 power source> About 4.3.2., what does "the power source of the drive system" refer to?	The power source(s) that drive the actuator systems.
D5	**2**	<power source> Is the power source for electric board, which is not used for actuating a mechanism, included in the "power source of the drive system"?	It is not consider as the power that must be power off.
D5	**3**	< 6.11. power source> As long as the power supply voltage is less than 24V, is it allowed to give more than 24V to a specific circuit by using booster circuit?	It is allowed.

D5	**4**	< 6.11. power source> I understand that the maximum power supply should be less than 24V. As long as the power supply voltage is less than 24V, can I boost the power beyond 24V inside and create AC100V to start up a desktop computer?	Yes it is allowed.
D5	**5**	<power source> Is there any regulation in the voltage source in wireless controller?	No voltage regulation for the wireless controller, but there must no connection to the venue AC voltage plug.
E	**1**	Concerning the batteries	To transport batteries without trouble please prepare and SDS（Safety Data Sheet）or MDDS (Material Safety Data Sheet) for the batteries you'll use. And keep them until the end of the contest and the shipping.
E	**2**	<6.10> Is it allowed to bring any spare robot(s) in addition to the robot(s) in the robot box?	It's NOT allowed. All parts and robots must fit in the robot box to bring them to the venue.

APPENDIX (next page)

Table 1: LIST OF ACTIVITIES BASED ON EVENTS IN A GAME

No. of Event	Activities	Time Allocation	Description	WISHTLE SOUND	TIMER Display	Sign of FLAG	Team members/ operators moving or activities
1	Preparation	50 seconds	Time allocation in total excluding ALARM to FINISH	none	countdown	YELLOW	allowed to enter court
2	ALARM SOUND to FINISH preparation	10 seconds	Countdown with TONE	none	countdown	none	Prepare to go out from court
3	PAUSE	immediate	Based on Main Referee request	none	PAUSE (end of preparation)	none	not allowed to enter the court
4	First SERVE (START OF MATCH)	5 seconds	Guided by whistle of Referee and countdown with TONE	SHORT	Countdown TIMER starts when WHISTLE sounds	GREEN (success); RED (FAILED)	not allowed to enter the court
=	Exception: FAILED SERVE	immediate	Approved by whistle (a point scored)	LONG	Countdown TIMER for next SERVE starts when a POINT SCORED	none	allowed to enter court and touch the robots
=	Exception: Shuttle landed	immediate	Approved by whistle (a point scored)	LONG	Countdown TIMER for next SERVE starts when a POINT SCORED	none	allowed to enter court and touch the robots
=	Exception: A team request TIME OUT	30 seconds	Approved by whistle	SHORT-SHORT	Countdown TIMER for TIME OUT. If finish automatically continue to Event no.5	YELLOW (TIME OUT end)	Request TIME OUT by raising WHITE FLAG
5	A point is scored and enter to preparation time for SECOND SERVE	15 seconds	Guided by whistle of Referee and countdown with TONE	SHORT	Countdown TIMER starts when a POINT SCORED	none	Allowed to enter court and touch the robots.
6	Second SERVE (in turns)	5 seconds	Guided by whistle of Referee and countdown with TONE	SHORT	Countdown TIMER starts when WHISTLE sounds	none	not allowed to enter the court
=	<normal game: SERVE to SCORE>	dynamically allocated	at least 8 serves and rally(s) in a game	based on activities	based on activities	based on activities	based on activities
7	FINISH of a game	dynamically allocated	when a score of 5 occurs, or finish by distintive decision	based on activities	based on activities	based on activities	based on activities