



(11) **EP 3 824 980 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
26.05.2021 Bulletin 2021/21

(51) Int Cl.:
A63F 3/06 (2006.01) G07C 15/00 (2006.01)

(21) Application number: **19838864.7**

(86) International application number:
PCT/RU2019/000495

(22) Date of filing: **12.07.2019**

(87) International publication number:
WO 2020/017999 (23.01.2020 Gazette 2020/04)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME KH MA MD TN

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(30) Priority: **16.07.2018 RU 2018126213**

(54) **METHOD FOR CONDUCTING SPORTS BETTING GAMES**

(57) The invention belongs to the field of mass entertainment, technical means of bookmaking; namely, the methods of holding games of chance and betting. The technical result of the proposed method of holding games of chance with bets in regard to a sports game is an increased stability of its result against willful actions of interested parties aimed at gaining an unfair advantage in a game of chance. In the event that the betting condition and, respectively, the betting parameter, is assumed as the speed of the game item or game subject under a certain number in a certain moment of game time, and the comparison is made during the game time, the sequence of actions shall be as follows. The game chronometry is started; during the game time, video or photo recording of game objects is performed within the game zone boundary. The game item or game subject bearing a certain number is recognized among all game objects within the game zone boundary; the speed of the game object is computed on the basis of the results of the video or photo recording using the object recognition and spatial coordinate computation unit, taking into the account the data of the chronometry unit. Next, the betting parameter (computed speed of the game object in a certain moment of time) is compared to the betting condition (speed of the game object in the same specific moment of time) from each bet. Based on the result of the comparison, bets are selected for which the betting condition matches the betting parameter, taking into account the measurement error or another specified interval. Afterwards, the winning bet information (details of the betting person, bet size) are saved in the winning bet information storage unit. The game chronometry is finished upon ex-

piry of the period specified in the rules for the certain game.

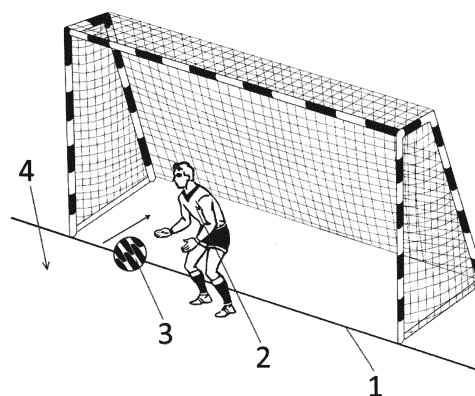


Fig. 1

EP 3 824 980 A1

Description

Technical Field

[0001] The invention belongs to the field of mass entertainment, technical means of bookmaking; namely, the methods of holding games of chance and betting.

Prior Art

[0002] There is a category of games of chance where a bet is conditioned upon the probability of occurrence of a certain event. The events are usually related to the sports events or other competitions.

[0003] A method of holding such game can be derived from prior art (invention RU2138311, publication date 27.09.1999). The specified method uses the competition of preferably same-type spacecraft launched into space especially for the betting game. Each game participant places a bet on a certain spacecraft. During the competition, game organizers determine the time-, and/or speed-, and/or coordinate-, and/or accuracy-based characteristics of each spacecraft versus the selected space object. The specified characteristics of all spacecrafts are compared (to determine the winning spacecraft in each specific selected criterion); based on the comparison, the winnings are allocated to the game participants.

[0004] A drawback of the aforementioned technical solution is the need to organize a dedicated competition in space, which is a complicated and resource-consuming process. Besides, spacecrafts have certain technical characteristics which can be known to the game participants, making the game less unpredictable.

[0005] The closest technical solution (prototype) is the game holding method using bookmaking bets (patent RU2622624, published on 16.06.2017). In this method, the event outcome for betting is a numerical sequence obtained on the basis of measuring the parameters of the selected 30 airplanes in flight, sorted by flight number. Each airplane is identified by such parameters as coordinates and/or speed.

[0006] The drawback of the existing technical solution is its low level of event unpredictability and, consequently, the possibility to predict the result, which leads to an increase in the probability of predictability of the result (betting parameter). This is caused by the following: Each airplane performing a certain flight has specified technical characteristics and a pre-determined flight route, which can be known to participants of the game or computed using technical means.

[0007] The technical result of the proposed method of holding games of chance with bets in regard to a sports game is an increased stability of its result against willful actions of interested parties aimed at gaining an unfair advantage in a game of chance.

[0008] The specified technical result is achieved due to the method for holding games of chance with bets in regard to a sports game, suggesting that the sports game

is assigned a specified game zone and minimum one control boundary; game subjects and the game item are identified within the game zone; the list and sequence of actions are saved for computation of winnings; registration and recording is performed in regard to the betting information, including betting person details, bet size, betting condition containing at least the game time, spatial coordinates, or speed of the game item, or at least one of the game subjects; measurement and saving of game data is performed as spatial coordinates, speed of game item and/or at least one game subject, and game time corresponding to the specified measurements is compared to the type-specific game data for the matching game time value; information is saved in regard to the bets for which the specified comparison identifies matching compared values, and for such bets the size of winnings is computed taking into account the specified list and sequence of actions.

Disclosure of Invention

[0009] The drawings specify: control boundary 1, game subject 2, game item 3, game zone 4.

[0010] The invention is implemented in the course of a variety of sports events (e. g. football, hockey, tennis, table tennis etc.) if the equipment described below is available.

[0011] As a rule, a sports event involves two teams with the same number of game subjects (players). Each game subject is assigned a dedicated number by which it can be distinguished from others.

[0012] The invention covers the kinds of sports where game subjects mostly interact using a game item. The game item is an item with characteristics that are strictly specific for each kind of sports. For instance, in football the game item is a football, for hockey a puck, etc. Hereinafter the game item and game subjects are collectively referred to as game objects.

[0013] The game zone is a ground whose shape is close to a rectangle, where game actions take place. For each dedicated kind of sports, this ground has a strictly specified size and marking pattern. The game zone has minimum one control boundary as described in the rules for the dedicated kind of sports (usually there are two control boundaries and they are located symmetrically on the opposite sides of the game zone).

[0014] The control boundary is a part of the plane with specified dimensions, designated by physical objects, e. g. goalposts and cross-bar. When a game item crosses the control boundary in a certain direction, the game event is registered, and the game score is changed. E. g. in football and hockey, the control boundary is the goal mouth - part of the plane constrained by the side posts and the cross-bar. For the aforementioned example, the game event is registered if the game item crosses the control boundary from the side of the center of the game zone.

[0015] The chronometry unit is a device which helps

measure the game time (the game events are only registered during the game time). Electronic clock is most commonly used as a chronometry unit. The chronometry unit must be capable of pausing and resuming the time-keeping if necessary.

[0016] The object recognition and spatial coordinate computation unit is a combination of devices intended for distinguishing the game item and each of the game subjects from all objects in the game zone, and for determining their spatial coordinates. For instance, the prior art offers the

GoalControl-4D system (<http://www.goalcontrol.de/en/products/goalcontrol-4d.html>, application date 24.07.2017), which is used to identify a goal in football. The system's operation is described in source <http://www.mk.ru/sport/2014/06/16/kiborg-vam-sudya.html>, application date 24.07.2017. All twelve stadiums hosting matches of the world cup in Brazil have been equipped with fourteen dedicated high-speed cameras each. Seven cameras were installed at each goalpost. Cameras were installed under the stadium roof and connected to the image processing computer system to transmit five hundred images per second. The cameras have also been filtering out the "unwanted" images (e. g. players, referees) and "saw" only the ball. Due to their three-dimensional vision, as soon as the ball fully crossed the goal mouth, the system registered the event (goal) and instantly sent the corresponding signal to the referee's smart watch. I. e. the system consists of fourteen cameras connected to the computing system for image processing. The system monitors the movement of all objects, filters out game subjects, referees and other objects, and determines three coordinates of the ball in the field with a specified accuracy and the event of crossing the goal mouth by the ball. In particular case, the object recognition and spatial coordinate computation unit can consist of a processing unit (e. g. computer) and minimum three cameras obtaining images of the game zone and objects in it. The cameras can perform video- and/or photo recording; the obtained information is saved to the memory unit to enable the possibility of its use in the future. The processing unit uses the images obtained from the cameras to compute spatial coordinates for the pre-selected game item or game subject under the required number. Besides, the computer can calculate the speed of a game item or a certain game subject taking into account the chronometry unit data.

[0017] The game result is determined using the game event counting units (according to the quantity of teams), comparison unit and game result storage unit. Game event counting unit is a device summing up the result-related game events for each team during the game time, i. e. crossing of a certain control boundary by a game item in a certain direction. The comparison unit is capable of comparing data from the game event counting unit for each team and sending the comparison result to the game result storage unit. Thus, the game result storage unit contains data which determines the winning team

(with the highest number of result-related game events) and the score.

[0018] The computed spatial coordinates and speed of the game item and game subjects in a certain moment of time, as well as the game result, are hereinafter referred to as the betting parameters.

[0019] Determination of the winning bets uses the betting information storage unit, comparison units, and winning bets information storage unit. The betting information storage unit is a device used for recording the data containing details of the betting person, bet size, betting conditions (the presumed result of the game or parameter of the game object and its value). The comparison unit is a device capable of comparing the betting condition to the betting parameter and sending the comparison result to the winning bets information storage unit. Each comparison unit compares only the homogenous betting parameter and betting condition, e. g. the presumed (specified in the bet) speed of a certain game subject in a specific moment of time to the computed speed of the same game subject in the same moment of time or the presumed (specified in the bet) spatial coordinates of the game item in a specific moment of time to the computed spatial coordinates of the game item in the same moment of time. Thus, the winning bets information storage unit contains details of the person who made a winning bet, and the bet size. The winning bet is the bet for which the betting condition matches the betting parameter.

Brief Description of Drawings

[0020] The invention is detailed by drawings (Fig. 1-3), where Fig. 1 shows a game subject near the control boundary in the moment when the game item crosses the control boundary;

[0021] Fig. 2 shows a game item possessing a certain speed in a certain point of the game zone; Fig. 3 shows a game subject possessing a certain speed in a certain point of the game zone.

Implementation of Invention

[0022] Provided that the aforementioned elements and means are used, the invention can be implemented as follows.

[0023] In advance, before the event mentioned in the betting condition, when the bet is made on the predicted outcome of the event, or during the event, when the bet is made on occurrence of a certain predicted situation in the course of the event, the betting information such as details of the betting person, betting conditions, bet size is recorded to the betting information storage unit. Game chronometry is performed during the game using the chronometry unit. Game zone boundaries are specified according to the kind of sports involved in the game; information pertaining to their location is recorded in the object recognition and spatial coordinate computation unit.

[0024] List and sequence of actions for computation of the size of winnings is prepared. Total sum of winnings is determined. In a particular case, a certain share of winnings is allocated to the organizer's costs related to holding the games of chance with bets in regard to the sports game. The remaining amount to be distributed among the winning bets is determined. Next, the percentage rate is determined for winnings related to the specific betting conditions (if such rate is necessary), e. g. for the final result of the game or for the characteristic of the game object in a specific moment of time, or size of winnings in the bet. Afterwards, the dependence of winnings on the bet size (if any) is determined, or fixed amount of winnings if the bet is fixed. This information is recorded in the corresponding memory unit for further computation of the winnings size.

[0025] Further actions are selected depending on the betting condition which is used for comparison, and time of the comparison (during or after the game).

[0026] In the event that the betting condition and, respectively, the betting parameter, is assumed as the game result (total score), and the comparison is made during the game time, the sequence of actions shall be as follows. In advance (or during the game time) the control boundary coordinates are determined for the control boundary relating to each of at least two teams. The game chronometry is started; during the game time, video or photo recording of game objects is performed within the game zone boundary. The game item is recognized among all game objects within the game zone boundary; the spatial coordinates of the game item are computed on the basis of the results of the video or photo recording using the object recognition and spatial coordinate computation unit. Next, the event of result-related crossing of a certain control boundary by a game item is determined; for this purpose, the game item coordinates are compared to the control boundary coordinates, and to the dynamics of the game item coordinates over time. In order to register the event of a result-related crossing of a control boundary, the game item must cross the plane of the control boundary within its limits. In the subsequent unit of time following the crossing, the game item coordinate must be captured outside of the game zone. Besides, coordinate of the game item in the direction specified in the previous sentence must increase over time (considering the short length of time including the moment of crossing of the control boundary). Next, the result of the game event is computed taking into account the relation of a certain control boundary to a certain team. All scores gained by each team are saved in various memory units. The game chronometry is finished upon expiry of the period specified in the rules for the certain game. Upon completion of the game, scores of each team are compared and the game result (winning team and its score) is saved in the game result storage unit. Next, the saved result of the game (total score and winning team) is compared to the saved results of the game from each bet; bets with the result matching the actual result of the

game are selected. Bets where the betting condition (in this particular case, the game result specified in a bet) matches the betting parameter (the saved result of the game) are hereinafter referred to as winning bets.

[0027] If the betting condition and, respectively, the betting parameter, is assumed as the situational data within the main event, e. g. actual (fact-based) speed of the game item or game subject under a certain number in a certain moment of game time, and the comparison is made during the game time, the sequence of actions shall be as follows. The game chronometry is started; during the game time, video or photo recording of game objects is performed within the game zone boundary. The game item or game subject bearing a certain number is recognized among all game objects within the game zone boundary; the speed of the game object is computed on the basis of the results of the video or photo recording using the object recognition and spatial coordinate computation unit, taking into the account the data of the chronometry unit. Next, the betting parameter (computed speed of the game object in a certain moment of time) is compared to the betting condition (speed of the game object in the same specific moment of time) from each bet. Based on the result of the comparison, bets are selected for which the betting condition matches the betting parameter, taking into account the measurement error or another specified interval. Afterwards, the winning bet information (details of the betting person, bet size) is saved in the winning bet information storage unit. The game chronometry is finished upon expiry of the period specified in the rules for the certain game.

[0028] If the betting condition and, respectively, the betting parameter, is assumed as the situational data within the main event, e. g. presumed spatial coordinates of the game item or game subject under a certain number in a certain moment of game time, and the comparison is made during the game time, the sequence of actions shall be as follows. The game chronometry is started; during the game time, video or photo recording of game objects is performed within the game zone boundary. The game item or game subject bearing a certain number is recognized among all objects within the game zone boundary; the spatial coordinates of the game object are computed on the basis of the results of the video or photo recording using the object recognition and spatial coordinate computation unit. Next, the betting parameter (computed spatial coordinates of the game object in a certain moment of time) is compared to the betting condition (spatial coordinates of the game object in the same specific moment of time) from each bet. Based on the result of the comparison, bets are selected for which the betting condition matches the betting parameter, taking into account the measurement error or another specified interval; such bets are hereinafter referred to as the winning bets. Afterwards, the winning bet information (details of the betting person, bet size) is saved in the winning bet information storage unit. The game chronometry is finished upon expiry of the period specified in the rules

for the certain game.

[0029] For the instances specified in the previous two paragraphs, during the game time it is only necessary to perform video or photo recording of game objects within the game zone boundary (or use other ways of capturing the coordinates and speeds of objects). All other activities can be performed upon completion of the game time, if the results of video or photo recording of the game are saved in an additional memory unit.

[0030] For all instances specified above, after the specified actions are performed according to the saved list and sequence of actions for computation of the size of winnings, the amount of winnings is computed for each winning bet.

[0031] E. g. in case of a winning amount of ten million rubles, thirty percent (i. e. three million rubles) is allocated to the organizer's costs related to holding the games of chance with bets in regard to the sports game. The remaining amount due for distribution between the winning bets is determined by way of deducting the amount put away by the organizers from the total amount of winnings, i. e. seven million rubles. Next the remaining amount is distributed by winnings in individual betting conditions according to the specified percentage rate, e. g. for the final result of the game, fifty percent of the remainder, i. e. three and a half million (from seven million), and for the game object characteristic in a certain moment of time, fifty percent of the remainder, i. e. three and a half million (from seven million). Afterwards, the final size of winnings for a specific player is determined on the basis of the dependence of the winnings on the bet size. E. g. if the winnings for the final result include five players with equal bet sizes, the share of winnings for this betting condition is equally divided between the winning players, i. e. each of them gains seven hundred thousand rubles. If the winnings for the game object characteristic in a certain moment of time include two players with 2:3 bet size ratio (e. g. one thousand rubles and one thousand five hundred rubles), the winnings are divided on the basis of the same ratio, i. e. one player gains one million four hundred thousand rubles while the other gains two million one hundred thousand rubles.

[0032] Thus, the implementation of the method of holding games of chance with bets in regard to a sports game, using such implementation conditions as spatial coordinates or speed of a certain game object in a certain moment of time, ensures increased level of unpredictability of the event underlying the final outcome of the method, and reduces the chance of its prediction. This is achieved though the following. The implementation condition of the method is based on data from sensors or measurement units ensuring collection of information pertaining to movement of the game object; thereby, the method operates the parameters which are virtually immune to manipulation. E. g. the possibility of making a person move with a pre-determined speed or manipulating a game item into moving with a certain speed in a specific moment of game time, taking into account the random

nature of interaction with other game subjects, is highly unlikely. It is also impossible to pre-determine the position of the game object in the game zone (i. e. spatial coordinates) in a specific moment of the game time. In this case, "impossible" means an extremely low probability of the situation and not its absolute impossibility. This ensures a significantly increased stability of the method's implementation result against willful actions of interested parties aimed at gaining an unfair advantage in a game of chance, i. e. decreases the possibility for meeting the conditions of a cahoot between the game subjects or with the participants making the bets.

Claims

1. method for holding games of chance with bets in regard to a sports game, suggesting that the sports game is assigned a specified game zone and minimum one control boundary; game subjects and the game item are identified within the game zone; the list and sequence of actions are saved for computation of winnings; registration and recording is performed in regard to the betting information, including betting person details, bet size, betting condition containing at least the game time, spatial coordinates, or speed of the game item, or at least one of the game subjects; measurement and saving of game data is performed as spatial coordinates, speed of game item and/or at least one game subject, and game time corresponding to the specified measurements is compared to the type-specific game data for the matching game time value; information is saved in regard to the bets for which the specified comparison identifies matching compared values, and for such bets the size of winnings is computed taking into account the specified list and sequence of actions.

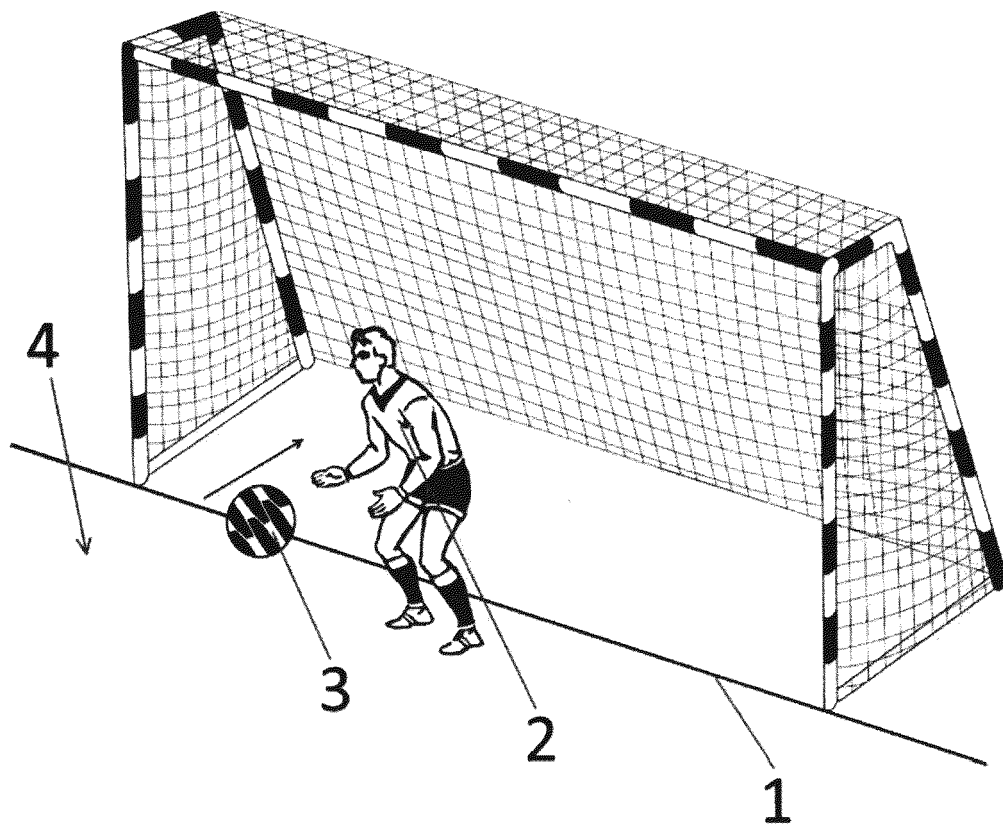


Fig. 1

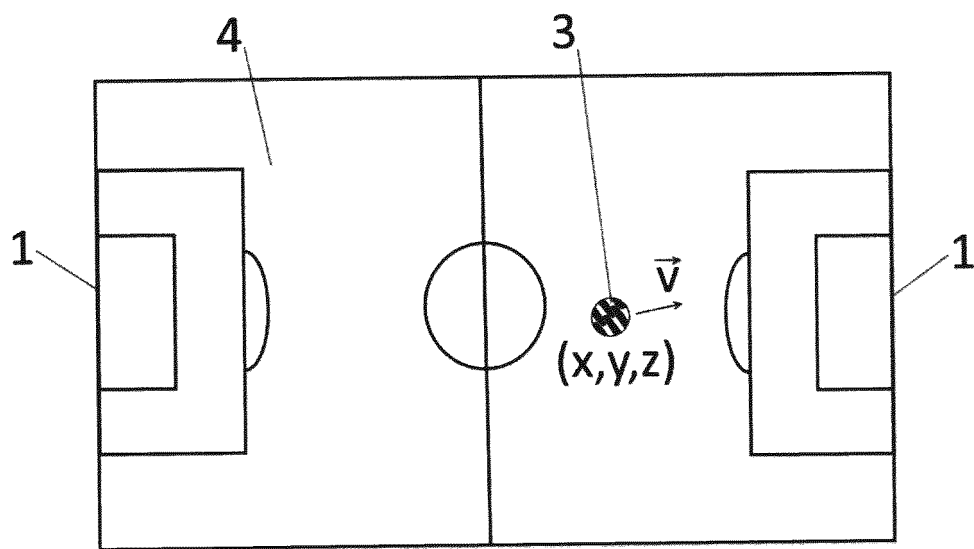


Fig. 2

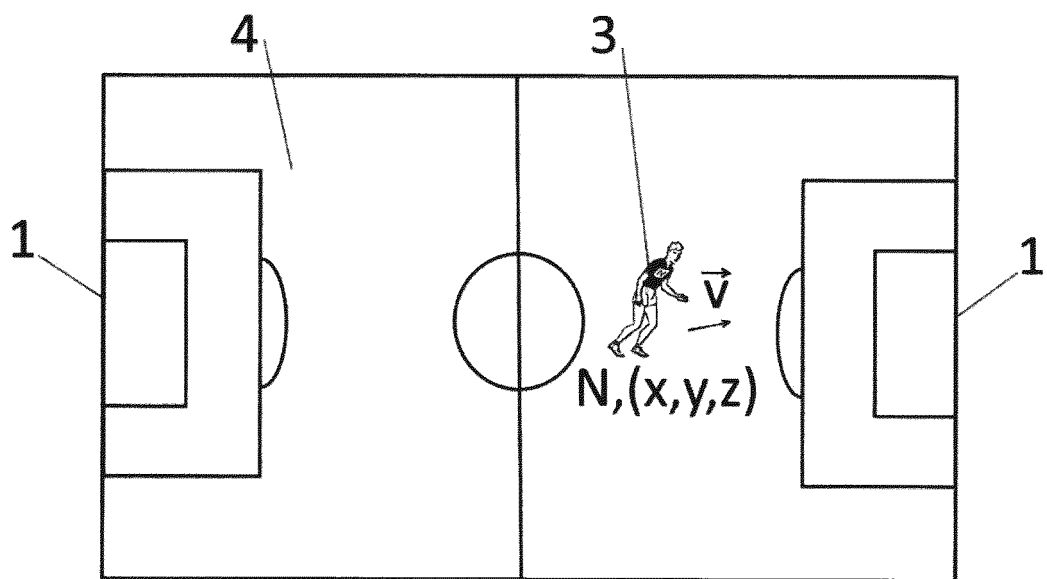


Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/RU 2019/000495

5	A. CLASSIFICATION OF SUBJECT MATTER		<i>A63F 3/06 (2006.01)</i> <i>G07C 15/00 (2006.01)</i>
	According to International Patent Classification (IPC) or to both national classification and IPC		
	B. FIELDS SEARCHED		
10	Minimum documentation searched (classification system followed by classification symbols)		
	A63F 3/00, 3/06, G07C 15/00, G07F 17/00		
	Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
15	Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
	PatSearch (RUPTO Internal), USPTO, PAJ, Espacenet, Information Retrieval System of FIPS		
	C. DOCUMENTS CONSIDERED TO BE RELEVANT		
20	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
25	X	RU 2622624 C2 (SMERNAKS K HOLDINGE LIMITED) 16.06.2017, p. 5 lines 1-17, p.7 line 17 - p.8 line 15, p.8 lines 35-48, p.12 line 42 - p.13 line 6, p.13 lines 27-416 p.14 lines 2-5, p.14 line 41 - p.15 line 10, p.15 lines 32-36, the claims	1
30	A	RU 2138311 C1 (SAFRONOV SERGEI MIKHAILOVICH) 27.09.1999	1
	A	RU 2643430 C2 (NOVOMATIK AG) 01.02.2018	1
	A	RU 2095112 C1 (LVOV DENIS ERNESTOVICH) 10.11.1997	1
35	A	US 2003/0027638 A1 (ACRES GAMING INCORPORATED) 06.02.2003	1
40	☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.		
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50	Date of the actual completion of the international search		Date of mailing of the international search report
	12 October 2019 (12.10.2019)		24 October 2019 (24.10.2019)
	Name and mailing address of the ISA/ RU		Authorized officer
55	Facsimile No.		Telephone No.

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- RU 2138311 [0003]
- RU 2622624 [0005]