



2021 Opposition/Validity/Novelty Search – Engineering

Sample Answer

[This document exemplifies how to interpret the search request, the preparation and gathering of keywords and patent classes and conducting a sample search including comments of how and why using search statements.]

0. The search request as presented to the examinee:

Your customer has developed a prototype system for assistance of communication during one of the below sports. (three variations for the different time zone regions in which the candidates sat for the exam)

A&B) Soccer (football) matches (linesman's flags)

C) Rugby matches (linesman's flags)

D) American football matches (linesman's flags)

You have discussed their system with them and been commissioned to carry out an investigation into its patentability. The following is a summary describing the system they have outlined to you and a potential claim set for a patent application.

Description

A system for assistance of sport players comprises transmitters integrated with conventional signalling devices such as a referee's whistle or linesman's flag.

When the referee or linesman blows their whistle or raises their flag the transmitter issues a wireless signal.

In the case of a whistle, the blowing of the whistle may be detected by a microphone, and in the case of a flag the raising of the flag may be detected using a sensor that detects the orientation of the flagpole.

The wireless signal may be a radio frequency signal.

One or more receivers which can be worn by players can respond to transmissions from the transmitters by signalling to the players in a way they are able to perceive. For example, the signal may be a vibration, a flashing light or an electric shock.

The invention is particularly useful for the hard of hearing but is not limited to such applications.

Claims

1. A system comprising one or more transmitter units and one or more receiver units wherein the transmitters can signal to the receivers by means of wireless transmission.
2. A system as defined in claim 1 wherein the wireless transmission is a radio frequency signal.
3. A system as defined in any preceding claim wherein the one or more receiver units are associated with a person.
4. A system as defined in claim 3 wherein the person is an American football / soccer (football) / rugby player.

5. A system as defined in claims 3 or 4 wherein the one or more receiver units provide an output perceivable by the person upon receipt of a transmission from the one or more transmitter units.

6. A system as defined in any preceding claim in which a first one of the one or more transmitter units is integrated into a **American football / soccer (football) / rugby** referee's whistle and transmits a signal in response to sensing the whistle being blown.

7. A system as defined in claim 6 wherein a second one of the one or more transmitter units is integrated into a **American football / soccer (football) / rugby** linesmen's flag and transmits a signal in response to sensing the flag being raised.

Prepare and conduct a search to assess the patentability of the proposed product.

1. Technical Background

1.1. Preparation / Background

A system comprising a transmitter which works in conjunction with an audible or visual signalling device used by a sports official, the transmitter arranged to send a wireless signal to a receiver associated with a sports player whenever the official signals with the signalling device, and the receiver arranged to alert the player to the fact that the official has signalled.

The main concept of the invention is the use of wireless technology to enhance communication between players and match/event officials in a sports event, the embodiment being a football match.

Conventional signalling devices, such a referee's whistle and/or linesman's flags, are augmented with sensors so that the conventional signal(s) is/are detected and wirelessly communicated for duplication, potentially in a different format, by a receiver worn by player(s).

The problem solved may be to assist signalling generally and/or to provide a useful signal to the hard of hearing. For example the duplicated signals may be vibration, flashing light or an electric shock!

Which aspects are special for the present game.? What other circumstances (besides disabilities) will make it hard for players to realize the referee interrupted the game (noise, angle of view, other?)

- **Constituting parts / feature list**

(1a) Wireless transmitter unit(s)

(1b) Wireless receiver unit(s)

(2) Wireless transmission is radio frequency signal

(3) Receiver unit(s) is/are associated with a person

(4) Person is a footballer

(5) Receiver unit(s) provide output perceivable by the person upon receipt of a transmission from the transmitter unit(s)

(6) First of transmitter unit(s) is integrated into a football referee's whistle and transmits a signal in response to sensing the whistle being blown

(7) Second of transmitter unit(s) is integrated into a football linesman's flag and transmits a signal in response to sensing the flag being raised

- **Claim interpretation aspects** [ONE possible way of using the above feature list, others like tables, matrices are of course equally accepted]

Interpreting the claims/feature combinations using the above numbering:

(1a&b) + (2) or (3) or (6))

(1a&b) + (2) + (3)

(1a&b) + (2) + (3) + (4)

(1a&b) + (2) + (3) + (5)

(1a&b) + (2) + (3) + (4) + (5)

Any of the above + (6)

Immediately above + (7)

2. Classification

- IPC

G08B SIGNALLING OR CALLING SYSTEMS; ORDER TELEGRAPHS; ALARM SYSTEMS

G08B 1/00 Systems for signalling characterised solely by the form of transmission of the signal

G08B 1/08 . using electric transmission ; transformation of alarm signals to electrical signals from a different medium, e.g. transmission of an electric alarm signal upon detection of an audible alarm signal

G08B 5/00 Visible signalling systems, e.g. personal calling systems, remote indication of seats occupied

G08B 5/22 . using electric transmission; using electromagnetic transmission

G08B 5/36 .. using visible light sources

G08B 5/38 ... using flashing light

G08B 6/00 Tactile signalling systems, e.g. personal calling systems

G08B 7/00 Signalling systems according to more than one of groups G08B3/00 - G08B6/00; Personal calling systems according to more than one of groups G08B3/00 - G08B6/00

G08B 7/06 . using electric transmission , e.g. involving audible and visible signalling through the use of sound and light sources

G08B 23/00 Alarms responsive to unspecified undesired or abnormal conditions

G08B 27/00 Alarm systems in which the alarm condition is signalled from a central station to a plurality of substations

G09 EDUCATION; CRYPTOGRAPHY; DISPLAY; ADVERTISING; SEALS

G09B EDUCATIONAL OR DEMONSTRATION APPLIANCES; APPLIANCES FOR TEACHING, OR COMMUNICATING WITH, THE BLIND, DEAF OR MUTE; MODELS; PLANETARIA; GLOBES; MAPS; DIAGRAMS

G09B 21/00 Teaching, or communicating with, the blind, deaf or mute

G04B MECHANICALLY-DRIVEN CLOCKS OR WATCHES; MECHANICAL PARTS OF CLOCKS OR WATCHES IN GENERAL; TIME PIECES USING THE POSITION OF THE SUN, MOON OR STARS

G04B 25/00 Indicating the time by other means or by combined means G04B 25/02 . by feeling; Clocks or watches for blind persons

A63B APPARATUS FOR PHYSICAL TRAINING, GYMNASTICS, SWIMMING, CLIMBING, OR FENCING; BALL GAMES; TRAINING EQUIPMENT

A63B 71/00 Games or sports accessories not covered in groups A63B1/00 - A63B69/00

A61F 11/00 Methods or devices for treatment of the ears, e.g. surgical; Protective devices for the ears, carried on the body or in the hand; Non-electric hearing aids

A61F 11/04 . Devices or methods enabling ear patients to replace direct auditory perception by another kind of perception

H04R 25/00 Deaf-aid sets - not really looking that relevant search wise but include for completeness

H04B 1/00 Details of transmission systems, not covered by a single one of groups H04B3/00 - H04B13/00; Details of transmission systems not characterised by the medium used for transmission
H04B 1/02 . Transmitters
H04B 1/03 .. Constructional details, e.g. casings, housings
H04B 1/034 ... Portable transmitters

H04B 7/00 Radio transmission systems, i.e. using radiation field.

- CPC

[It is considered a good idea to start finding classification based on a very rudimentary search in espacenet, combining ((referee or linesman) and signal and wireless). This reveals some first CPC classes to start with.]

G08B -(signalling/calling systems) e.g. 1/08 (using electric transmission)
5/22 (visible signalling systems; using electric/electromagnetic transmission)/low
G08B 5/36 (visible light sources)
G08B 5/38 (flashing light)
6/00 (tactile signalling systems)
7/06 (signalling systems according to more than one of groups 3/00-6/00, using electric transmission)

23/00 (alarms responsive to unspecified undesired or abnormal conditions)

27/00 (alarm systems in which the alarm condition is signalled from a central station to a plurality of substations)

G09B 21 (Apparatus for teaching or communicating with the blind, deaf or mute)
G09B 21/009 . Teaching or communicating with deaf persons (G09B21/04 takes precedence; deaf and dumb persons G09B21/00) [2013-01]

A63B 71 (Games or sport accessories not covered in groups ...)

A61F 11/04/low (Devices or methods enabling ear patients to replace direct auditory perception by another kind of perception)

A63B 2225/00 Miscellaneous features of sport apparatus, devices or equipment

A63B 2225/50 . Wireless data transmission, e.g. by radio transmitters or telemetry

A63B 2225/52 .. modulated by measured values

A63B 2225/54 .. Transponders, e.g. RFID

A63B 2243/00 Specific ball sports not provided for in
A63B2102/00 - A63B2102/38

A63B2243/0025 • Football (American football A63B2243/007)

A63B2243/0066 • Rugby; American football

A63B2243/007 •• American football

A63B APPARATUS FOR PHYSICAL TRAINING, GYMNASTICS, SWIMMING, CLIMBING, OR FENCING;
BALL GAMES; TRAINING EQUIPMENT

A63B 71/00 Games or sports accessories not covered in groups A63B1/00 - A63B69/00 (starting
appliances A63K3/02)

A63B 71/06 . Indicating or scoring devices for games or players , or for other sports activities

A63B 2071/0602 .. Non-electronic means therefor

A63B 71/0605 .. Decision makers and devices using detection means facilitating arbitration

A63B 71/0608 ... using mechanical, i.e. non-electrical means

A63B 2071/0611 ... Automatic tennis linesmen, i.e. in-out detectors

H04R 25/00 (Deaf-aid sets)

H04B 1/034/low (transmission, details of transmission systems, transmitters, constructional details)
portable transmitters

H04B 1/0343 (to be carried on the body)

H04B 1/0346 (hand held transmitters)

H04B 7/00/low Radio transmission systems, i.e. using radiation field

G10K 5/00 Whistles

- **other classification**

Derwent Manual Codes

none found

F-terms

5D060 – Bells, Chimes, Whistles and Sirens

5K – Telecommunication, radio and optical transmission

5K023 – Telephone Set Structure

USClA

116/137R - Horns, Whistles And Compressional Wave Generators

340 - Communications: Electrical

340/286.01 – Systems

340/815.4 - Visual Indication

340/407.1 - Tactual Indication

340/825.19 - Communication or Control for The Handicapped

341/21 - For Handicapped User

377/5 - Game or Sport

340/323R - Game Reporting

463/39 - Wireless Signal

FI, Dekla, others

none found

3. Concepts

- Keywords

In classification areas other than A63B71 try looking for documents that mention sports, and perhaps particular sports such as football/soccer, rugby, hockey, ice hockey, athletics, basketball etc.

In classification areas other than G09B21 try looking at those documents which mention the problem to be solved, i.e. look for deaf, deafness, hearing impaired and the like.

Look for wireless communication/technology to enhance/improve/augment communication between players/officials/team members.

- main keywords
- word fields
- special vocabulary
- other languages
- non-Latin scripts

Look up different names / positions of referees and linesmen using en.wikipedia.org. There is a page on referees that also details many different sports and their judges' names. Besides there are links to other language pages that also contain names of referees in different sports in their local language (<https://en.wikipedia.org/wiki/Referee>):

Football (soccer):

referee, umpire, fourth official, schiedsrichter, unparteiischer, schiri, linienrichter, arbitre, arbitro, juez de linea, linier, abanderado, guardalinea

Rugby:

referee, touch judge, video referee, in-goal judge, (haupt)schiedsrichter, linienrichter, arbitre, juge de touche, juge de ligne d'un but, juez de linea, linier, abanderado, guardalinea

American Football:

referee, head linesman, down judge, line judge, umpire, back judge, side judge, field judge, arbitre principal, juge de melee, juge de chaine, jude de ligne, juge de champ arriere, juge de cote, juge de champ, juez de linea, linier, abanderado, guardalinea

Wireless Transmission:

- 1) wireless* or drahtlos* or without wire* or kabellos* or cableless* or free of / without wire* or radio* or funkfrequenz*
- 2) transmitt* or transmission or transfer* or uebertrag* or verbind* or kommunikat* or communicat* or signal* or sender* or empfaenger* or receiver*

Kind of signals

- 1) Vibrat*
- 2) Flash* light* or blinklicht* or blitzlicht* or blitzleucht*

3) Electric shock* or elektroschock* or elektr* schock* or elektr* schlag*

Referee / Linesman

- 1) Linesman* or linienrichter* or fussballlinienrichter*
- 2) Referee* or schiedsrichter* or fussballschiedsrichter*

Sport

- 1) Soccer or fussball* or football or calcio
- 2) Rugby
- 3) American Football or fussball*
- 4) Ballsport* or rasensport* or ball sport* or others, like volleyball or handball or hockey or eishockey or basketball*

Supplementary words

- 1) whistle* or pfeife* or signalpfeife*
- 2) flag* or flagge* or signalflagge* or linienrichterflagge*
- 3) gehoerlos* or deaf* or blind* or sehbehind* or handicap* or handikap* or behinder* or disabili* or schwerhoer* or taub* or hoergeschaedigt* or hearing impaired

4. Search History

- commented history

Databases [different databases might be useful depending on the task at hand (e.g. bibliographic vs. fulltext)]

- Derwent World Patent Index
- PatBase
- Orbit.com / FamPat
- national fulltext collections
- web-based (EspaceNet, DepatisNet, USPTO, IPDL, national collections)

- strategy

- modularisation
- combination (operators)
- truncation, spelling variants
- sanity checks (checking intermediate results, creating deltas)
- analysing intermediate results (e.g. statistically for classification, sample results for additional keywords)
- citations
- translation
- document delivery

Check against known documents [This was NOT requested and is only added for completeness, if mentioned by examinee it resulted in bonus points]:

GB2447265

One possible example history with comments:

[It is self-evident that there is no such thing as a perfect or THE best search procedure, so the below is just one possible way of successfully approaching the search topic. The extensive commenting (can of course also be done differently with copying from the history), a quick and dirty search to find classification (lines 5 to 9), the use of different truncation and adjacency operators (e.g. line 25), re-using parts (e.g. lines 25 and 32), searching for citations on a promising set (line 46) all demonstrate the mastering of the skills necessary to conduct a successful search.]

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PN=(US2016012810 AA OR WO13011259 A1 OR US10002503 BB OR GB2447265 A1
54 OR US7173533 BA OR US2006180073 AA OR WO0176265 A1 OR US6181236 BA OR 9
US6181236 BB OR US4853674 A)
53 // Above: The final result handed over to customer for discussion - one representative 0
from each family
52 ////////////////////////////////////// 0
51 ////////////////////////////////////// 0
50 // A search for inventor or company could be performed if any in particular stood out from 0
```

the results.

49	// Above: Inventor or company search	0
48	// SS 47 to be viewed during normal circumstances	0
47	46 and (sc=(A63B71/06 or A63B2225/50*) or tac=((rugby or sport% or game%) and (hearing w2 (hard or impair*))))	79
46	cta 45	316
45	PN=(US2016012810 AA OR WO13011259 A1 OR US10002503 BB OR GB2447265 A1 OR US7173533 BA OR US2006180073 AA OR WO0176265 A1 OR US6181236 BA OR US6181236 BB OR US4853674 A)	9
44	// Above: One representative from each family	0
43	// Above: citation search on identified patent families	0
42	////////////////////////////////////	0
41	// SS 40 to be viewed during normal circumstances	0
40	or=37:39	95
39	sp=((rugby or sport% or game%) and (handicap* or hearing w2 (hard or impair*)) and wireless* and (alarm% or alert* or warn*) and (sound% or audio or noise% or vibrat* or buzz* or (flash* light%) or (electric shock*)))	79
38	SPUB=(tac=((rugby or sport% or game%) and (hearing w2 (hard or impair*))) and ft=(wireless* and (alarm% or alert* or warn*) and (whistle% or whistling or flag*)))	3
37	SPUB=(tac=((rugby or sport% or game%) and wireless* and (alarm% or alert* or warn*)) and ft=(hearing w2 (hard or impair*)))	18
36	// Above: words-words search	0
35	// SS 34 to be viewed during normal circumstances	0
34	or=30:33	96
33	29 and sp=(wireless* and (alarm% or alert* or warn*) and (whistle% or whistling or flag*))	11
32	29 and sp=((whistle% or whistling or flag%) and (referee% or lineman% or linemen) and (alarm% or alert* or warn* or sound% or audio or noise% or vibrat* or buzz* or (flash* light%) or (electric shock*))) and player%	36
31	29 and stac=(wireless* and (alarm% or alert* or warn*) and (microphone% or accelerometer% or (gravity sensor%) or (g sensor%) or (gravity detector%) or (orientation sensor*)))	37
30	29 and stac=((whistle% or whistling or flag%) w5 (referee% or lineman% or linemen))	29
29	sc=A63B71/06	26,154
28	// Above: The most relevant IPC class: "Indicating or scoring devices for players"	0
27	// SS 26 to be viewed during normal circumstances	0
26	or=23:25	86
25	22 and sp=((whistle% or whistling or flag%) and (referee% or lineman% or linemen) and (alarm% or alert* or warn* or sound% or audio or noise% or vibrat* or buzz* or (flash* light%) or (electric shock*))) and player%	17
24	22 and sft=((whistle% or whistling or flag%) w5 (referee% or lineman% or linemen))	30
23	22 and stac=(whistle% or whistling or flag%)	66
22	cpc=A63B2225/50*	5,261
21	// Above: Broader class combined with relevant search terms for other feature elements	0
20	// Since this class only contains a few hits it would be completely viewed during normal circumstances	0
19	cpc=A63B2225/52*	89
18	// Above: the most relevant CPC class for "Apparatus for physical training..., misc, wireless data transmission, modulated by measured values"	0
17	// Above: class-words search	0
16	// SS 14 and 15 were viewed	0
15	cta 14	21
14	fn=49637770	1
13	// Above: Citation on an identified patent family	0
12	// Class-class search not relevant	0
11	// Above: searching	0

10	//////////	0
9	// SS 5-8 were used for identification of relevant classes	0
8	ta=(referee and (flag% or whistle%) and communicat*)	19
7	ta=(sport and ((hearing impaired) or (hard w2 hearing) or handicap*))	58
6	ta=(sport and ((hearing impaired) or (hard w2 hearing)))	1
5	ta=(sport and referee)	63
4	// Above: Small search to try to identify relevant classes	0
3	//////////	0
2	// Search begun 20210223 by examinant	0
1	// Above: Search for novelty - System for assistance of communication during rugby matches	0