

A game

The invention relates to a game comprising a main structure, e.g. a game board, which is connectable to a power supply, and multiple game pieces for playing the game.

Sometimes a distinction is made between games and puzzles in which a game is a

5 structured activity requiring interaction and a puzzle is undertaken alone. As the distinction is not clear cut, the term game includes puzzles in this application. Key features of a game according to this application are goals, rules and challenge, generally involving mental or physical stimulation.

10 As the invention relates to games having a main structure and game pieces, the invention is not related to electronic games as such, i.e. computer games, but for example to games, e.g. chess, and puzzles, e.g. jigsaw puzzles, or a combination thereof with electronics such as used in computer games.

15 An example of such a combination is disclosed in international patent application WO96/03188A1, in which electronics, e.g. the ones used in computer games, are combined with a traditional board game to offer the advantages of both worlds.

20 In more detail, WO96/03188A1 discloses a combination of a computer game and a board game including a game board, a plurality of game pieces selected positionable by a player with respect to the game board, and an apparatus for automatically and non-discretely sensing the location of the game pieces relative to the game board, and actuating an audio/visual display sequence in response thereto.

25 Another example is disclosed in international patent application WO01/15059A2 in which a method for detecting the position of game pieces relative to a game board is described.

30 A disadvantage of the abovementioned disclosures is that the interaction between the game board and the game pieces is limited to positioning the game pieces relative to the game board, measuring said position by the game board and using this information as input to the game.

It is therefore an object of the invention to provide a game having increased interaction.

This object is achieved by a game comprising:

- a main structure, e.g. a game board, connectable to a power supply;
- multiple game pieces for playing the game;

5 wherein the game comprises a light source arranged on one of the multiple game pieces to emit light and a light receiver arranged on another one of the multiple game pieces to receive the emitted light from the light source in order to transfer information between said game pieces, and wherein the main structure and said game pieces are configured to wirelessly transfer energy from the power supply via the main structure to said game
10 pieces to power said light source and light receiver on said game pieces in at least one position of said game pieces relative to the main structure.

The light source and the light receiver enable direct communication between game pieces without having to route the communication via the main structure. As a result, game input
15 can be directly provided from one game piece to the other and/or relative positions of the game pieces independent of the game board can be used as input to the game, thereby increasing the interaction possibilities of the game.

The information can be any kind of information, such as the presence of a game piece
20 when another game piece is able to receive a light signal of the other game piece. The information may also be contained in a light pattern, the intensity of the light and/or the frequency of the emitted light. This allows to both transfer simple information and more complex information.

25 The use of light to communicate between the game pieces further has the advantage that minimal interference is obtained between the communication of game pieces and the transfer of energy to the game pieces. It further allows to visualize the communication as the light may be detectable by a user. Another advantage may be that game pieces may communicate with each other over a relatively large distance without requiring large
30 amounts of energy compared to electromagnetic communication means. Yet a further advantage is that the communication is wireless and thus does not require contact between the game pieces.

In an embodiment, the light source and the light receiver together form a photoelectric
35 sensor capable of detecting the presence or absence of a game piece or the distance between game pieces.

Energy may be transferred from the main structure to the game pieces only when the game pieces require energy, in which case the game pieces are only operational when they are within the at least one position in which energy can be and actually is transferred.

5 In an alternative embodiment, energy may be transferred at any time and stored in a storage device to be released later when required. In that case, the game pieces do not necessarily have to be positioned in the at least one position in which energy can be transferred to be operational.

10 In an embodiment, the main structure may also be provided with one or more light sources and/or one or more light receivers such that the main structure is also able to communicate with one or more game pieces. Another advantage may be that it enables to determine position and/or orientation of the game pieces relative to the main structure using the light sources and/or light receivers.

15 In an embodiment, the game may be provided with additional optical elements such as mirrors and/or lenses in order to manipulate the light emitted from a light source before it is received by a light receiver.

20 In an embodiment, each game piece comprises both a light source and a light receiver to respectively transmit and receive information. The light receiver and light source thus respectively act as an input and output for a game piece. Each game piece preferably is configured such that the state of the at least one light source is determined by the state of the at least one light receiver, so that the game piece is able to relay information possibly while adapting or manipulating the information.

25 In an embodiment, a signal received by a game piece via a light receiver of the game piece may be manipulated before being relayed to the light source, for instance based on another input signal received by another light receiver of the game piece. In a specific embodiment, one or more game pieces may therefore comprise at least two light
30 receivers and a processing unit, e.g. a logic gate, wherein the at least two light receivers are connected to respective inputs of the processing unit, and an output of the processing unit is connected to at least one light source. The processing unit may be programmed to provide a certain output based on predetermined inputs of the light receivers. The output may be directly linked to the inputs as is the case with a logic gate, but the inputs may
35 also trigger a sequence of outputs which can not be interrupted for a certain time frame by the inputs and which is controlled by the processing unit.

Also in case a game piece only has one light receiver, a processing unit may be provided in order to perform certain acts in response to the signals received by the light receiver.

For instance, the processing unit may change the colour of at least a part of the game piece in response to signals received by the light receiver. Or a display or speaker is

5 activated in response to signals received by the light receiver.

To wirelessly transfer energy from the game board to a game piece, a first coil may be arranged on the main structure and a second coil may be arranged on said game piece such that the two coils are able to electromagnetically couple with each other during

10 normal game conditions.

The combination of first coil and second coil determines in which positions relative to the main structure of the game pieces energy can be transferred from the main structure to the game pieces. In an embodiment, the first and second coil are configured such that a first coil on the main structure can only electromagnetically couple with only one second coil. In another embodiment, the first coil is much larger than the second coil, so that the first coil is able to electromagnetically couple with more than one second coil at the same time.

20 By measuring for instance the current and/or voltage through the first coil, it is possible to detect whether a second coil is electromagnetically coupled to the first coil which enables to detect the presence of a game piece in a certain area. This kind of information can be used as input to the game, but it can also be used to save energy and minimize electromagnetic radiation by shutting off the first coil in case no second coil is present.

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To prevent electromagnetic radiation from spreading outside of the energy transfer area, which energy transfer area is defined as the area in which a game piece is able to receive energy from the main structure by electromagnetic coupling of the respective first and second coil, a dynamic shielding technique can be applied to contain the magnetic field of the coils within a predetermined volume. This may ensure electromagnetic compatibility. When planar coils are used, the dynamic shielding can for instance be provided by positioning the coils between conducting planes. At sufficiently high frequencies (>100 kHz), the coils generate eddy currents in the conducting planes which oppose the magnetic field of the coils and thus contain it within the two conducting planes.

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Thus, in an embodiment, the main structure comprises a conducting plane extending parallel to the first coil, and wherein the game pieces each comprise a conducting plane

extending parallel to the respective second coil, such that during electromagnetic coupling between the first coil and the respective second coil, the electromagnetic field is contained in between the conducting plane on the main structure and the respective conducting plane on the game piece.

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In order to efficiently transfer energy from the first coil to the second coil, a resonant circuit may be employed, e.g. a LC-circuit. In such a case, the resonant circuit may be implemented in the main structure by using a push-pull MOSFET configuration driven by a clock generator. Another option for driving is to use a class-E amplifier, wherein the inductive and resistive part of the load are formed by the first and second coils together with the resistive load of the game piece. This allows for a low-cost driving circuit, which only consists of an inductor, two capacitors and an N-channel MOSFET which functions as a switch. It is possible to add a phase locked loop to keep the system in resonance.

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The frequency used is preferably between 100 kHz and 10 MHz to obtain sufficient energy transfer through the air in between the first and second coil. Note that even in case there is no air present between the first and second coil there probably are materials in between the first and second coil that from an electromagnetic point of view behave similar to air. As a result, the same advantage is obtainable.

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The voltage resulting in the second coil may be rectified using a half bridge rectifier (series diode) and can subsequently be regulated to e.g. 3.3 V using a zener regulator. Alternatively, a full bridge rectification can be used in combination with an AC/DC or DC/DC conversion for voltage regulation.

25

In an embodiment, the light source is a LED.

In an embodiment, the light receiver is a photodiode.

In an embodiment, the light receiver and the light source are integrated and thus able to emit light or receive light depending on the modus it is in.

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In an embodiment, the main structure and/or one or more of the multiple game pieces are each provided with an information device, e.g. a display or speaker, able to provide game information to a user of the game in dependency of the information received via the one or more light receivers provided on the game piece.

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In an embodiment, the main structure and/or one or more of the multiple game pieces are each provided with a user input to enable a user to supply information to the game.

5 In an embodiment, a controller is provided to control the game, e.g. by supplying and receiving signals respectively to and from game pieces. Said controller is preferably arranged on or in the main structure, in which case the main structure is preferably also provided with light receivers and/or light sources in order to be able to communicate with the game pieces via the main structure.

10 In an embodiment, each light source is supported by a first part and each light receiver is supported by a second part, said first and second part having complementary shapes configured to interlock.

15 In an embodiment, the main structure delimits, e.g. via a recess in the main structure, a 2D game zone in which the multiple game pieces can be received.

In an embodiment, the first coil of the main structure is positioned in the bottom surface of the 2D game zone.

20 The invention also relates to the use of a game according to the invention.

The invention further relates to a game comprising:

- a main structure, e.g. a game board, connectable to a power supply;
- multiple game pieces for playing the game;

25 wherein the main structure comprises a light source and/or a light receiver, and wherein one of the multiple game pieces comprises a light receiver when the main structure comprises a light source, and wherein one of the multiple game pieces comprises a light source when the main structure comprises a light receiver, a light source being configured to emit light and a light receiver being configured to receive the emitted light from a light
30 source in order to transfer information between the main structure and at least one of the multiple game pieces, and wherein the main structure and the game pieces having a light source or light receiver are configured to wirelessly transfer energy from the power supply via the main structure to said the game pieces having a light source or light receiver to power said light source or light receiver on said game pieces in at least one position of
35 said game pieces relative to the main structure.

The game may be combined with any of the embodiments described above.

The invention will now be described in a non-limiting way by reference to the accompanying drawings in which like parts are indicated by like reference numerals and in which:

- 5 Fig. 1 depicts a schematic view of a game according to an embodiment of the invention;
- Fig. 2 depicts a game according to another embodiment of the invention;
- Fig. 3A-3C depict general types of game pieces that are suitable to be used in a game according to Fig. 2;
- 10 Fig. 4A-4C depict possible embodiments of the game pieces of Fig. 3A-3C;
- Fig. 5A-5E depict other possible embodiments of the game pieces of Fig. 3A-3C;
- Fig. 6 depicts a game piece having another structural configuration suitable to be used in a game piece according to an embodiment of the invention;
- Fig. 7 depicts the effect of sandwiching the first and second coil of a game
- 15 according to an embodiment of the invention in between two conductive planes to contain the electromagnetic field;
- Fig. 8 depicts the use of a class-E amplifier to drive the first and second coils and game load of a game according to another embodiment of the invention.

- 20 Fig. 1 depicts a schematic side view of a game according to an embodiment of the invention. The game comprises a game board GB as main structure and multiple game pieces GP of which three are shown in Fig. 1 at distinct locations on the game board GB.

25 The game board GB is connectable to a power supply (not shown), in this case an external power supply, via connectors CO. Power may be supplied directly to the game board or it may be stored first in an energy storage device such as a battery and then delivered to the power consuming components. In another embodiment, the power supply may be formed by replacable batteries, said batteries at the same time functioning as energy storage devices.

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 The connectors CO are in this embodiment connected to a power control unit PCU which may adjust the incoming power signal and outputs an appropriate power signal to first coils C1 located at or just below the upper surface US of the game board GB. Usually, the power control unit must at least adapt the AC frequency of the power signal to the

35 respective first coils C1. Each first coil C1 is associated with a location where a game piece GP can be positioned. Alternatively, a single large first coil could have been used defining a large area in which game pieces can be located for energy transfer.

The location of the first coils delimit the positions in which game pieces can be placed to draw energy from the game board. The actual game zone, which may be a 1D, 2D or 3D game zone, may be larger as it may also include positions in which no wireless energy transfer is required or where energy is drawn from an energy storage device arranged inside the game piece.

In this embodiment, the configuration of the game pieces is identical, so that the features of the game pieces are described and indicated in relation to the left most game piece alone. A game piece GP has a second coil C2 at the bottom of the game piece to interact with a respective first coil C1 in the game board. By inductive coupling, i.e. electromagnetically coupling, of the first and second coil C1, C2, energy can be transferred from the first coil C1 to the second coil C2 of the game piece so that energy can be transferred wirelessly, i.e. without direct contact between the first and second coil. The first and/or second coils C1, C2 may be implemented using a copper spiral etched into the copper foil of a PCB. This provides for a low-cost alternative to a copper wound coil. Preferably, the main structure comprises a first coil having multiple windings, e.g. a copper wound coil, to increase inductance and the second coils are spiral shaped.

The game piece further comprises a processing unit PU, two light sources LS and two light receivers LR. The light sources LS are configured to emit light, which is controlled by the processing unit that draws its energy from the game board via the second coil C2. The light receivers LR are configured to receive the emitted light from a light source LS and output a corresponding electric signal in response to receiving the emitted light. The output of the light receiver LR is connected to the processing unit PU such that the respective electric signal may be processed.

As can be seen in Fig. 1, light sources LS of one game piece are able to emit light to light receivers LR of other game pieces as indicated by the arrows AR. This allows to transfer information from one game piece to another. Usually, the light source is only able to be in an "on" or "off" state which allows to transfer information between game pieces using binary code, wherein preferably the "on" state of the light source corresponds to the binary digit 1. The processing unit PU is configured to control the light source based on the information that has to be transferred. As the light source may be a LED which is preferably current driven, the processing unit may also comprise the necessary electronics to provide the required current to the light source.

Using a light source with only two possible states has the advantage that it is simpler, but more complex light sources are also possible, for instance light sources that may have a variable intensity or light sources that are able to change colour.

- 5 Although a game piece according to the invention only requires one light source LS or one light receiver LR, having both has the advantage that a game piece is able to transmit and receive information at the same time. In such a case, the processing unit PU may be configured to control the light source in dependency of the light receiver, so that the transmitted information is based on the received information. Adaptation or manipulation
10 of the received signal may be carried out before sending the information to another game piece via the light source.

The light receivers LR may be in the form of a photodiode.

- 15 As described above, the light sources may be in the form of light emitting diodes (LEDs) which provide for an energy efficient solution. As a LED is also sensitive to incoming light, a LED can also be used as a photodiode and thus the light source and the light receiver can be integrated.
- 20 In a non-shown embodiment, the game pieces may further be equipped with audio or visual information devices, e.g. displays, light indicators, speakers, etc., to respectively output sounds or images in dependency of the by the light receivers received information. Said audio or visual devices are preferably also controlled by the processing unit. In another non-shown embodiment, the game pieces may further be equipped with buttons
25 or touch sensitive devices to allow user input via the buttons or touch sensitive devices as additional input to the game.

- Fig. 2 shows two top views of a game according to another embodiment of the invention. On the left, a game is shown without game pieces GP, and on the right the game
30 including game pieces GP is shown. The game comprises a game board GB and arranged in the upper surface US of the game board a square recess RE having a bottom B and four vertical side walls S1, S2, S3, S4 connecting the bottom B to the upper surface US. The recess RE delimits a 2D game zone in which game pieces can be placed in an array in a controlled manner to play the game, i.e. tilting of the game board will not
35 automatically result in the game pieces falling from the game board.

Provided in the sidewalls S3 and S4 are light sources LS. Light receivers LR are provided on the opposite side walls S1, S2. As the light sources and light receivers are normally not visible in a top view according to Fig. 2, they are indicated here in dashed lines. The light sources LS are connected to light indicators LI1 at the upper surface US of the game board to indicate the state of the respective light source to a user. A user is able to change the state of a light source by pressing a respective button BU near the light source. The buttons BU thus act as input to the game via the light sources.

The light receivers are also connected to respective light indicators LI2, so that the "state" of the light receivers is also visible for a user of the game. A light indicator LI2 is usually configured to emit light when the respective light source emits light or when the respective light receiver receives light. In all other cases, the light indicator should be dark, i.e. "off". However, a configuration the other way around is also possible.

Although not explicitly shown, the game also includes a power source, e.g. a battery, or connections to connect the game to an external power source as shown with reference to Fig. 1 to power the light sources and light receivers on the game board and to provide power to the game pieces if necessary.

The square recess RE of this embodiment is able to receive four game pieces GP in a 2x2 array as indicated on the right of Fig. 2. Preferably, the top surface of the game pieces lies flush with the upper surface US of the game board when the game pieces are positioned in the 2D game zone. More preferably, some space is available around a game piece in order to be able to place and remove a game piece from the 2D game zone using fingers or a suitable tool.

To power the four game pieces, wireless transfer of energy is preferred, so that first coils C1 are preferably provided in the bottom of the recess as shown on the left of Fig. 2.

Alternatively, the first coils could be provided in the sidewalls, but the bottom is preferred as there is much more space available at the bottom than at the sidewalls as the sidewalls are usually relatively small in height. Similar second coils are provided at the bottom of the game pieces (not shown, but similar to the game pieces of Fig. 1) to interact with the first coils C1.

Alternatively, a single large first coil could have been provided, wherein such a first coil should have been large enough to allow all four game pieces to be placed inside the first coil when seen from above.

The wireless transfer of energy could also have been implemented using capacitive coupling between the game board and the game pieces.

5 In the embodiment of Fig. 2, the game pieces each comprise two light receivers LR to receive light from a neighbouring light source LS of the game board GB or another game piece GP. The signals received by the light receivers are transmitted to a processing unit PU which based on the input signals outputs corresponding signals to two light sources LS configured to emit light to neighbouring light sources LS of the game board or another
10 game piece GP.

Due to the configuration of Fig. 2, an input as set by the buttons BU by a user and indicated by the light indicators LI1 is transferred to the output of the game board in the form of the light indicators LI2 via the game pieces, wherein the game pieces are able to
15 manipulate the transmitted signals, i.e. the state of the light sources of a game piece depend on the received signals by the light receivers and the corresponding manipulation by the processing unit.

As a result, a user may be challenged to find a solution for a given input (indicated by the
20 light indicators LI1) and a desired output (indicated by the light indicators LI2) using different game pieces that are able to manipulate the transmitted signals in a different manner. Alternatively, the user may be challenged to find a solution for a given array of game pieces and a desired output by setting the input.

25 In Fig. 2, the game pieces GP seem similar as they all have two light sources and two light receivers. It is however also possible to use other types of inputs and outputs as shown with reference to Fig. 3A-3C.

In Fig. 3A a game piece GP having one light receiver LR (as input) and three light sources
30 LS (as output) is shown, where a game piece having three light receivers (as input) and one light source LS (as output) is shown in Fig. 3B.

Fig. 3C depicts a game piece GP having two light receivers LR and two light sources LS in a different arrangement than the game pieces shown in Fig. 2. In Fig. 3C, the light
35 sources and light receivers are respectively arranged at opposite sides of the game piece, where in Fig. 2, a light source is arranged opposite a light receiver.

Each type of game piece can be used in a game according to Fig. 2. Each type can also have different processing units such as a logic gate in the form of a NOT, AND or OR Boolean operator. This is shown schematically in Fig. 4A-4C for the different types of Figs. 3A-3C.

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In Fig. 4A, the type of game piece of Fig. 3A is shown having a NOT logic gate as processing unit. When light is received by a light receiver LR, the logic gate ensures in this specific example that the corresponding light sources LS will not emit light and vice versa.

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In Fig. 4B, the type of game piece of Fig. 3B is shown having an AND logic gate as control unit. This ensures that in this specific example the light source LS is only emitting light when all three light receivers receive light.

15 In Fig. 4C, the type of game piece of Fig. 3C is shown having an OR logic gate as control unit. This ensures that in this specific example both light sources LS are emitting light when one or more of the light receivers receives light.

20 By combining the type of game pieces of Fig. 3A – 3C with the different logic gates NOT, AND, OR, but also NAND, NOR, etc, many different game pieces can be provided which behave differently at the output when subjected to the same inputs.

25 Instead of a logic gate, the processing unit may also simply relay the signals. This results in different game pieces GP as depicted in Fig. 5A-5E in which the light sources LS and light receivers LR of Fig. 3A-3C are connected in different ways as indicated by the respective solid connection lines.

30 In Fig. 5A and 5B, the type of game piece of Fig. 2 is shown with two possible ways of connecting the respective light sources and light receivers, i.e. respectively in parallel and cross-linked. In Fig. 5C and 5D, the type of game piece of Fig. 3C is shown in which the respective light sources are connected to respective light receivers in two different ways. Fig. 5E shows a possible connection scheme for the type of game piece of Fig. 3A. The same type of configuration can be chosen for the type of game piece of Fig. 3B.

35 In the Figs. 2-5E, the game pieces have a shape which allows to combine game pieces in an array in such a way that two light receivers of adjacent game pieces can be positioned opposite each other, which would block the transferral of information. Likewise, two light

sources can be positioned opposite each other. To reduce the chance of such blockage of information, it is possible to provide visual means to indicate to a user where the light sources and light receivers are located on a game piece so that a user may notice the abovementioned situations and may correct this if necessary.

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The visual means may be implemented by first and second parts having different complementary shapes configured to interlock as for instance shown in Fig. 6. In this figure, the outer contour of a game piece GP is shown, wherein the outer contour has two protrusions PR and two indentations or recesses IN, said protrusions being able to be received in the indentations of a neighbouring game piece or game board. It is possible to provide the light sources at the protrusions and the light receivers at the indentations, so that positioning the game pieces in an array-like manner will urge a user to combine a protrusion of one game piece with an indentation of an adjacent game piece so that it is ensured that a light source is coupled to a light receiver. Further, the shape of the game piece resembles a puzzle piece enhancing the puzzle feel of the game. When one or more light sources or receivers are arranged on the game board, the game board also has the appropriate shapes at these locations, so that the game pieces may match with the game board.

Fig. 7 depicts a cross-section of a game piece GP being placed on a game board GB. Arranged on the game board is a first coil C1, and arranged on the game piece is a second coil C2. Both the coils C1 and C2 have a rotational symmetry axis SA, so that Fig. 7 only depicts half the coils C1 and C2. As can be clearly seen in Fig. 7, the first and second coil are arranged opposite each other to allow the transfer of energy from the first coil to the second coil. Driving the first coil with a frequency above the 100kHz will generate an electromagnetic field MF indicated by the magnetic field lines of which only one is denoted MF. Conducting planes in the form of conducting plates are provided respectively below the first coil C1 and above the second coil C2. Due to the conducting plates, the electromagnetic field MF is contained in between the conducting plates and does not extend beyond the conducting plates. This is due to the fact that driving the first coil with a frequency above the 100kHz will generate eddy currents in the conducting plates that oppose the generated magnetic field, having the electromagnetic field MF as a result.

Fig. 8 depicts an embodiment of how the coils C1 and C2 of the previous embodiments, and the first and second coil in general, can be driven. Shown in Fig. 8 is a electrical circuit including a class-E amplifier portion CEA which comprises of an N-channel

MOSFET switch MS, an inductor L1 and two capacitors CA. The switching of this amplifier can be controlled by an appropriate processing unit PCU.

5 The amplifier load CEL includes the first coil C1 of the game board and the load circuit of the game piece including the second coil C2 and additional resistive and/or capacitive and/or inductive components. As a result, a low-cost driving circuit is obtained.

10 It is noted here that the skilled person is able to expand the size of the illustrated games without undue burden, so that the invention is not limited to a 2 by 2 array as shown in Fig. 2, but may also be a 4x4, 5x6 or any other feasible sized array.

15 It is further mentioned here that the shape of the game pieces is not limited to square or rectangular shaped pieces, but may have any form depending on the game, for instance, circular, oval, hexagonal, triangular, etc.

20 When using a game like the game according to Fig. 2 with game pieces according to for instance Figs. 4A-5E, there is a chance of creating a feedback loop. Such a feedback loop may be detected by sending a specific signal for each game piece via the light sources and detecting if said specific signal returns to said game piece using the light receivers of said game piece as the other game pieces will in case of a feedback loop relay the signal without altering the specific signal.

25 It is noted here that although the invention has been described in relationship to specific game configurations, the invention is not limited to these type of games and may also be implemented in other kinds of games.

C L A I M S

1. A game comprising:

- a main structure, e.g. a game board, connectable to a power supply;
- multiple game pieces for playing the game;

characterized in that

the game comprises a light source arranged on one of the multiple game pieces to emit light and a light receiver arranged on another one of the multiple game pieces to receive the emitted light from the light source in order to transfer information between said game pieces, and wherein the main structure and said game pieces are configured to wirelessly transfer energy from the power supply via the main structure to said game pieces to power said light source and light receiver on said game pieces in at least one position of said game pieces relative to the main structure.

2. A game according to claim 1, wherein each game piece comprises both a light source and a light receiver to respectively transmit and receive information.
3. A game according to claim 2, wherein each game piece is configured such that the state of the at least one light source is determined by the state of the at least one light receiver.
4. A game according to claim 3, wherein one or more game pieces are provided with a logic gate and at least two light receivers, the at least two light receivers being connected to respective inputs of the logic gate, and an output of the logic gate being connected to the at least one light source.
5. A game according to one or more of the preceding claims, wherein the main structure and the game pieces carrying a light source or light receiver are configured to wirelessly transfer energy from the main structure to said game pieces by electromagnetic coupling between a first coil arranged on the main structure and a second coil arranged on the respective game pieces.
6. A game according to one or more of the preceding claims, wherein the light source is a LED.
7. A game according to one or more of the preceding claims, wherein the light receiver is a photodiode.
8. A game according to one or more of the preceding claims, wherein the main structure and/or one or more of the multiple game pieces are each provided with an information device, e.g. a display or speaker, able to provide game information to a user of the game.

9. A/ game according to one or more of the preceding claims, wherein the main structure and/or one or more of the multiple game pieces are each provided with a user input to enable a user to supply information to the game.
10. A game according to one or more of the preceding claims, comprising a controller to control the game, e.g. by supplying and receiving signals respectively to and from at least one game piece.
11. A game according to one or more of the preceding claims, wherein each light source is supported by a first part and each light receiver is supported by a second part, said first and second part having complementary shapes configured to interlock.
12. A game according to one or more of the preceding claims, wherein the main structure delimits a 2D game zone in which the multiple game pieces can be received.
13. A game according to claim 5 and 12, wherein the first coils are arranged in a bottom surface of the 2D game zone.
14. A game according to claim 5, wherein the main structure comprises a conducting plane extending parallel to the first coil, and wherein the game pieces each comprise a conducting plane extending parallel to the respective second coil, such that during electromagnetic coupling between the first coil and the respective second coil, the electromagnetic field is contained in between the conducting plane on the main structure and the respective conducting plane on the game piece.

FIG 1

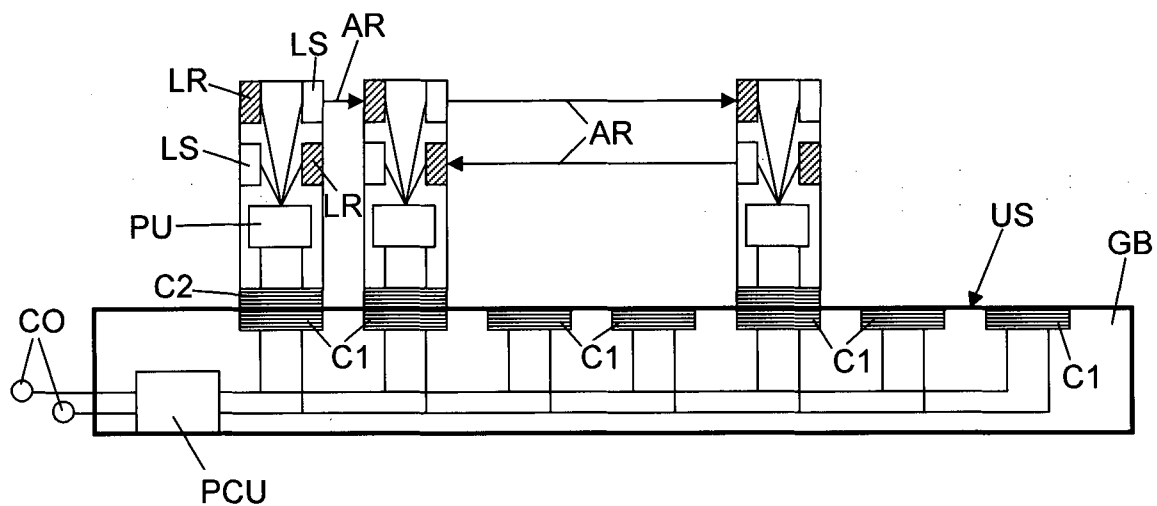


FIG 2

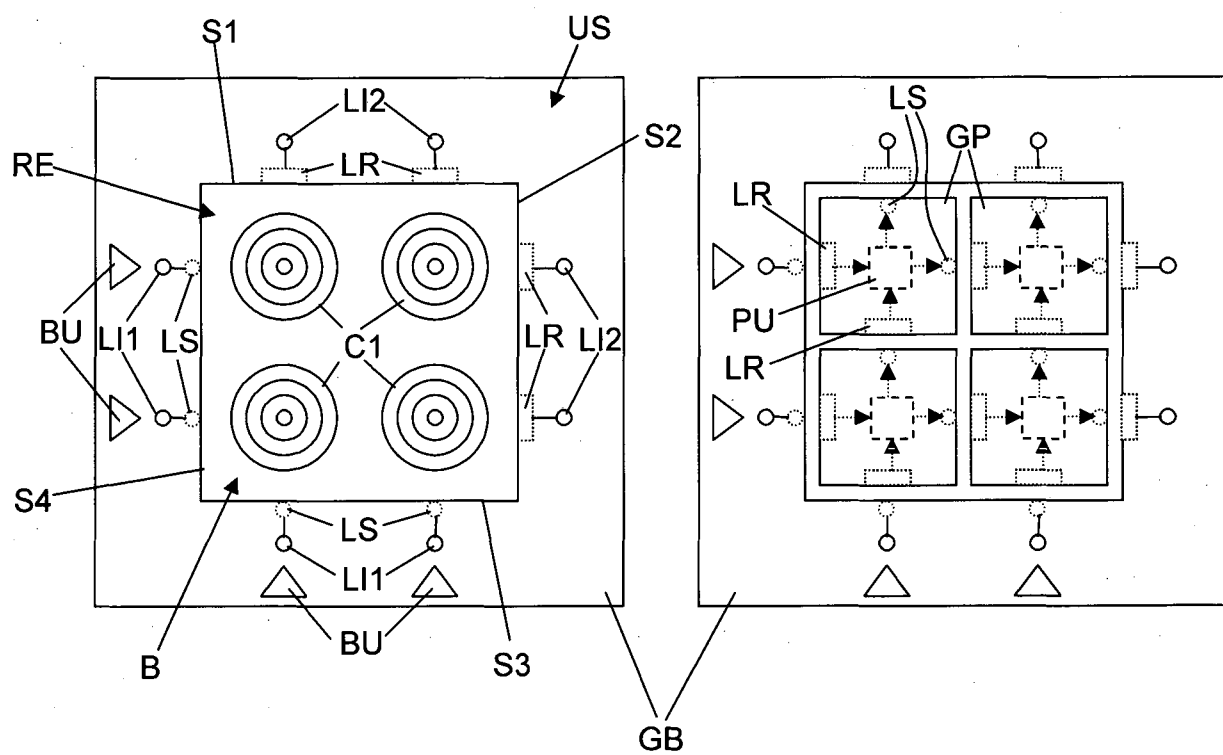


FIG 3A

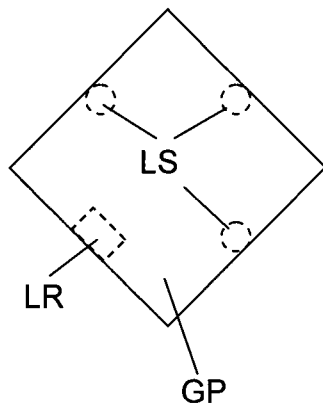


FIG 3B

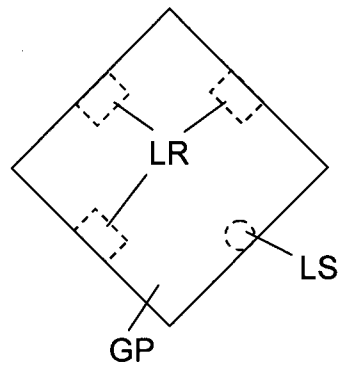


FIG 3C

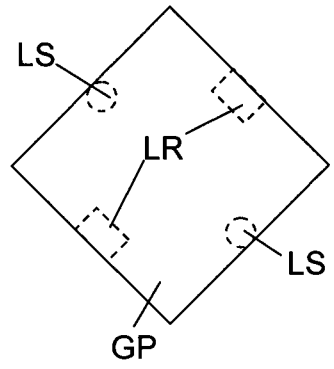


FIG 4A

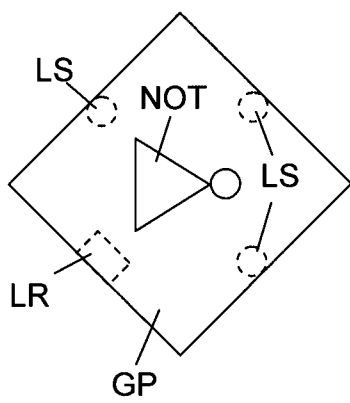


FIG 4B

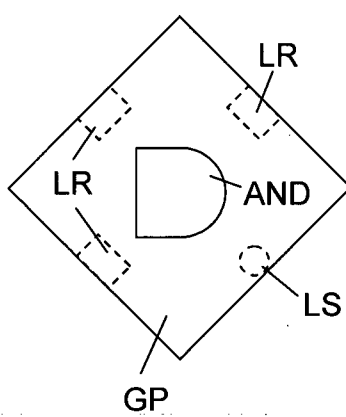


FIG 4C

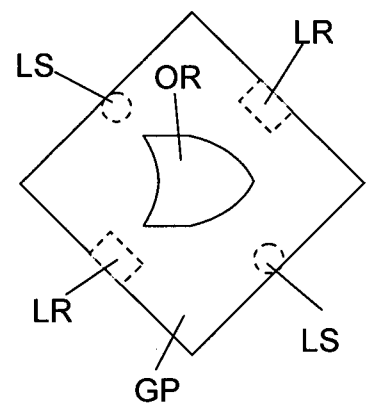


FIG 5A

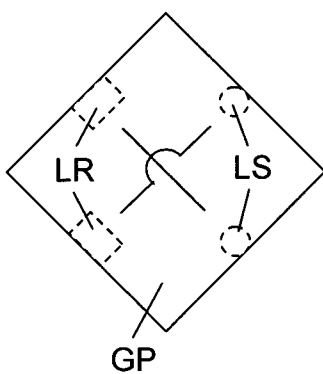


FIG 5B

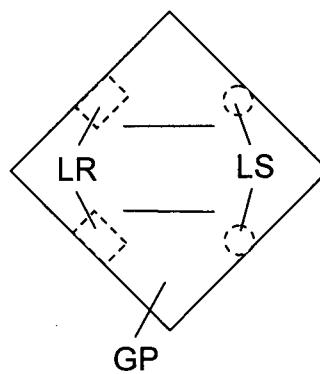


FIG 5C

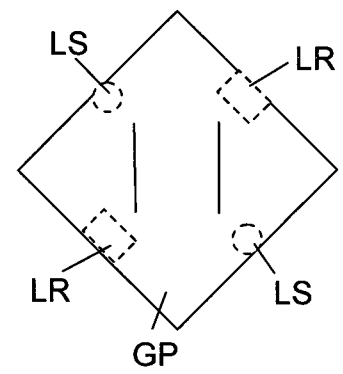


FIG 5D

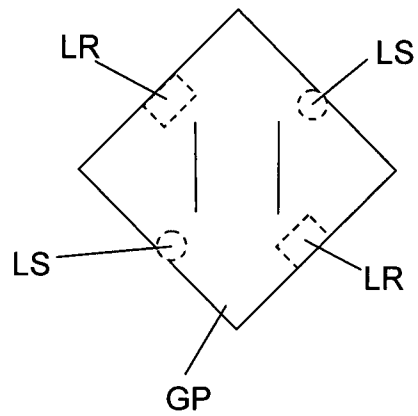


FIG 5E

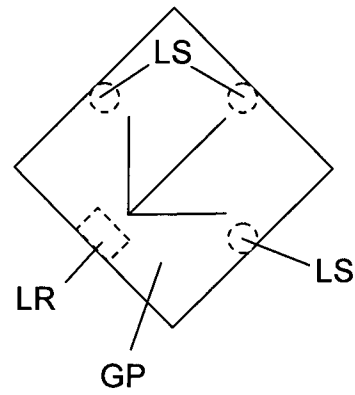


FIG 6

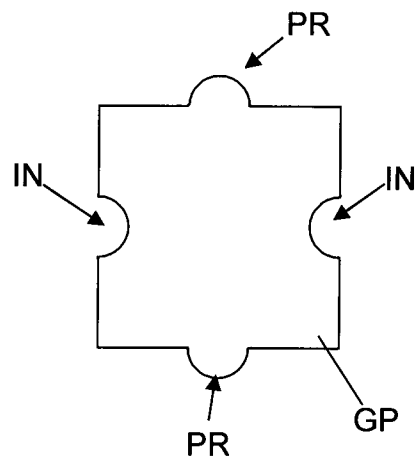


FIG 7

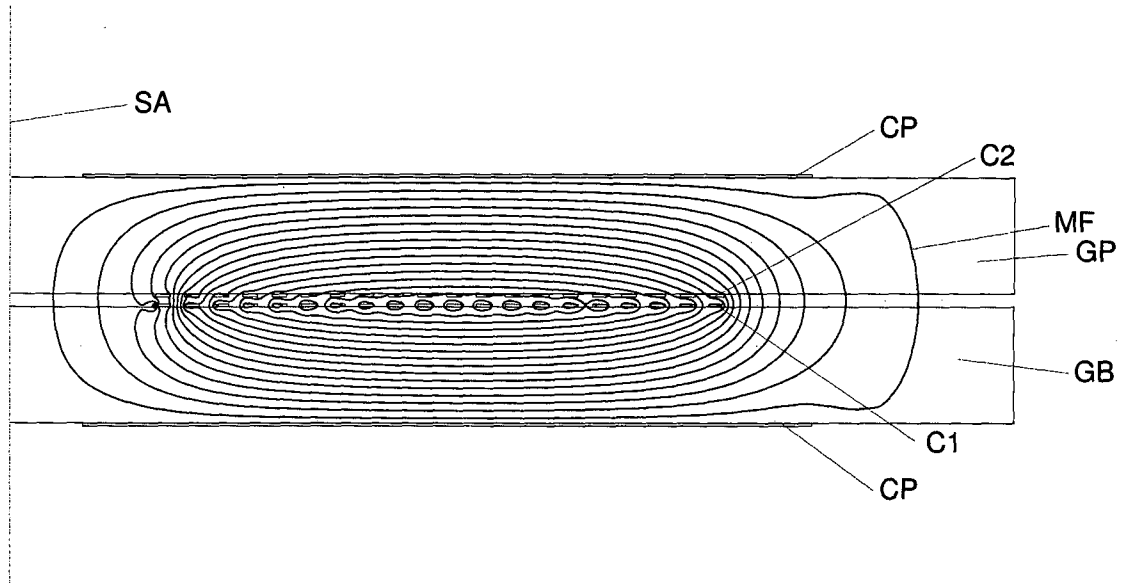
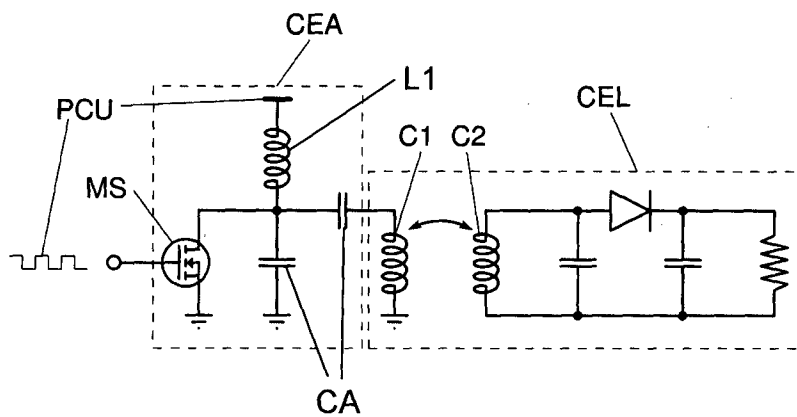


FIG 8



INTERNATIONAL SEARCH REPORT

International application No

PCT/NL2012/000017

A. CLASSIFICATION OF SUBJECT MATTER

INV. A63F3/00

ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A63F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EP0-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2006/120633 A2 (KONINKL PHILIPS ELECTRONICS NV [NL]; CORTENRAAD HUBERTUS M R [NL]; BER) 16 November 2006 (2006-11-16) page 3, line 22 - line 27 page 5, line 20 - page 6, line 7; figures -----	1-14
A	WO 01/15059 A2 (GAMALONG LTD [IL]; MORAG MEIR [IL]; ILAN GABRIEL [IL]) 1 March 2001 (2001-03-01) cited in the application page 8, line 15 - page 9, line 29; figures -----	1-14
A	US 5 188 368 A (RYAN PAUL T [GB]) 23 February 1993 (1993-02-23) column 5, line 17 - line 32; figures ----- -/--	1-14



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See patent family annex.

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Date of the actual completion of the international search

22 May 2012

Date of mailing of the international search report

31/05/2012

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International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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