The present invention relates to a system, processes and apparatus for an image creation game. The system of the present invention is made up of processing arrangements executed by software which provides for the formation of spaces, and the creation of objects within those spaces, on a graphical user interface Playing Field display. The apparatus includes the graphical user interface Playing Field display, player input device(s) and software interpretation hardware such as a computer or other programmable device, to enable a player to interact with the gaming processes.
Fig. 5
Fig. 7
Start

Input to Start

Initialize

Final Result achieved

Drop particle from random column

New particle timer

Move cursor sub routine

Particle fall in column

at last free row

was particle captured

lose particle and points

Capture particle

Freeze particle manipulate particle

release particle

another suitable particle adjacent

combine and alter entity

Leave in place

Cursor COG+ particle COG

Change attribute of final result

Next level

Change level reset display

End
COMPUTER GAME WHICH PRODUCES STEG SPACES AND STEG OBJECTS

FIELD OF THE INVENTION

[0001] The present invention relates to the field of digital electronics and, specifically, to the subfield of computer games. This particular computer game introduces the usage of spatial reality, termed Steg Space reality by the inventors, wherein the player is enabled to create objects termed Steg Objects; however, the invention is not restricted to this particular field of use.

[0002] In particular, the present invention relates to a system, processes and apparatus for an image creation game. The system of the present invention is made up of processing arrangements executed by software which provides for the formation of spaces, and the creation of objects within those spaces, on a graphical user interface Playing Field display. The apparatus includes the graphical user interface Playing Field display, player input device(s) and software interpretation hardware such as a computer, or other programmable device, to enable a player to interact in the gaming process. The term Steg derives from the Greek work “Stegeo” which translates to “I store”. Cinematic imagery creation is also an area of implementation of this invention.

BACKGROUND OF THE INVENTION

[0003] The history of computer-based games is varied and is well represented in the public domain in numerous devices in either portable or non-portable forms.

[0004] It is known that commercialized computer-based games, through digital electronic processes, permit the simple addition of graphical elements, or blocks to visually construct structures such as a brick wall. This is represented in the game “Tetris”®.

[0005] It is also known that other computer-based games concentrate on the goal of visually capturing spaces, such as outer space. In essence, these games reflect the motivation of securing virtual territory by role-playing characters displaying pro-active aggression, e.g. “Civilization” and “Master of Orion”. The act of “capture” is the specific and definable goal of such a game. It is further known that numerous other computer-based games are constructed around the specific goal of visually “seeking and destroying” targets, e.g. “Mortal Kombat” and “Pacman”.

[0006] The computer-based games referred to above employ preset game objectives and final outcomes, such as the virtual construction of “walls”, “seeking and destroying” a target or “capturing territories”. These objectives and final outcomes are predetermined by the game manufacturers.

[0007] To overcome the deficiencies of, or to provide an alternative to, existing computer-based games, the present invention enables the player to generate new and un-predefined images of varying complexity. The player sets the goal (that is, the image(s) to be created) for each individual session of the game. Whether the player’s goal is the final outcome of the game depends on the skill of the player. The player can be one, or more than one player.

BRIEF SUMMARY OF THE INVENTION

[0008] One of the objects of the present invention is to provide a computer-based game process and system and the apparatus for operating that process and system that overcomes or at least ameliorates one or more of the deficiencies of existing computer-based games or provides an alternative to the conventional computer-based gaming process.

[0009] This claimed invention involves different shaped Particles presented in a random order, which proceed to become Falling Particles. Player-directed movement of Particles requires utilisation of a Cursor.

[0010] This game is characterised by the interplay of Cursor-Particle movements that are controlled by the player according to the player’s individual game strategy. The player executes the strategy by using the Cursor to create “Engaged Particles”. By successfully completing the sequence first involving searching for a Falling Particle, through to transformation to an Engaged Particle, the player is granted increased “degrees of freedom” of influence over a Particle. This enables a player to manipulate the direction of movement of a Particle and/or one or more of the Particles’ Attributes.

[0011] The player first must use the Cursor to search and access a Falling Particle. The player must then use the Cursor manipulator to alter the Cursor’s Attributes to emulate one, if not all (depending on the level of game difficulty), the Falling Particle’s Attributes. Once the Cursor’s Attributes concur with the Falling Particle’s Attributes, a state of “Harmonic Concurrence” is achieved. This enables the Cursor to combine with the Particle to form a Cursor-Particle complex in which the Cursor appears to vanish, leaving an Acquiesced Particle. The state of “Acquiescence” means that the Particle is no longer falling but is enabled to “float” or “hover” in the same position in the Playing Field. When the player uses the Cursor to control the position of an Acquiesced Particle, it then becomes an Engaged Particle. The player is now able to manipulate the Attributes of the Engaged Particle and is also granted increased positional Degrees of Freedom (DOF) enabling the Engaged Particle to be moved in the desired horizontal, vertical and/or rotational vectorial planes.

[0012] The player is enabled to deliberately arrange the Engaged Particle within the Playing Field by moving it to the desired column of the Playing Field, and then strategically releasing it from the Cursor, so that the Particle falls to the desired position which is towards the base of the Playing Field. The assembly of strategically-released Particles forms unique configurations, made up of specific spaces and specific objects within those spaces. Collectively these so-called “Steg Spaces” and “Steg Objects” are created by the player to build an image or images.

[0013] Described herein are game processes and systems, and the apparatus for operating such game processes and systems, used for image creation though game play. In this game, players creatively express their game strategy using a Cursor to manipulate Particles on a Playing Field so as to assemble the Particles to form images in the space that is contained between strategically-placed adjoining Particles.

[0014] According to one aspect of the present invention there is provided a computer game apparatus including:

[0015] a) a programmable device that executes game instructions;

[0016] b) a visual display that enables a Playing Field and visual Attributes of graphical elements of the game to be viewed;
e) a Cursor manipulator that enables movement and Attributes of a Cursor and other said graphical elements of the game to be manipulated by a player;

f) one or more speakers that enable sound Attributes of said graphical elements to be transformed into audible sound; and

g) a game process that enables the strategic assembly of a subtype of said graphical elements known as Particles to create:

i) one or more enclosed spaces, termed Steg Spaces; and

ii) one or more objects, termed Steg Objects within said Steg Spaces on said Playing Field.

According to another aspect of the present invention there is provided a computer game apparatus wherein said Playing Field displays said visual Attributes of the following graphical elements:

a) said Cursor;

b) one or more said Particles;

c) one or more said Steg Spaces; and

d) one or more said Steg Objects

such that said graphical elements are seen by a player and others.

According to still another aspect of the present invention there is provided a computer game apparatus wherein said Particle consists of, at different stages during game play, different Particle states including:

a) an initial Particle;

b) a Falling Particle;

c) an Acquiesced Particle;

d) an Engaged Particle;

e) a released Particle;

f) a final rest state Particle; followed by

g) an assembled Particle,

each state enabled to have different Attributes.

According to still another aspect of the present invention there is provided a computer game process including:

a) a programmable device that executes game instructions;

b) a visual display that enables a Playing Field and visual Attributes of graphical elements of the game to be viewed;

c) a Cursor manipulator that enables movement and Attributes of a Cursor and other said graphical elements of the game to be manipulated by a player;

d) one or more speakers that enable sound Attributes of said graphical elements to be transformed into audible sound; and

the strategic assembly of a subtype of said graphical elements known as Particles to create:

i) one or more enclosed spaces, termed Steg Spaces; and

ii) one or more objects, termed Steg Objects within said Steg Spaces on said Playing Field.

According to still another aspect of the present invention there is provided a computer game system including:

a) a programmable device that executes game instructions;

b) a visual display that enables a Playing Field and visual Attributes of graphical elements of the game to be viewed;

c) a Cursor manipulator that enables movement and Attributes of a Cursor and other said graphical elements of the game to be manipulated by a player;

d) one or more speakers that enable sound Attributes of said graphical elements to be transformed into audible sound; and

e) the strategic assembly of a subtype of said graphical elements known as Particles to create:

i) one or more enclosed spaces, termed Steg Spaces; and

ii) one or more objects, termed Steg Objects within said Steg Spaces on said Playing Field.

These and other objects, features and advantages of the present invention will become apparent upon reading the following detailed description when taken in conjunction with the appended claims.

BRIEF DESCRIPTION OF DRAWINGS

Further objects, features and advantages of the invention will become apparent from the following detailed description taken in conjunction with the accompanying figures displaying illustrative embodiments of the invention, in which:

FIG. 1 shows by way of example the schematic representation of the initial state of game play, with a rectangular Playing Field containing a Cursor and a Particle, according to the claimed invention.

FIG. 2 shows by way of example a Falling Particle and a primed Cursor seeking, and preparing to access the Falling Particle.

FIG. 3 shows by way of example a Cursor-Particle complex with the Cursor no longer visible.

FIG. 4 shows by way of example the Engaged Particle being directed down towards the bottom row of the Playing Field.

FIG. 5 shows by way of example the Engaged Particle being directed horizontally for alignment with the preferred column of the Playing Field.

FIG. 6 shows by way of example a released Particle and the reappearance of the Cursor on the Playing Field.
[0059] FIG. 7 shows by way of example the Cursor seeking out the next randomly presented Particle, whilst the released Particle continues in free fall towards the base line.

[0060] FIG. 8 shows by way of example the released Particle at a final rest state at the base of the playing field, whilst Engagement of the next randomly presented Particle is shown with a third Particle which begins free fall.

[0061] FIG. 9 shows by way of example the advancement of game play resulting in the arrangement of two assembled Particles on the baseline. This is the beginning of the process of Steg Space formation.

[0062] FIG. 10 shows by way of example the creation of a Steg Object within a completed Steg Space.

[0063] FIG. 11 shows by way of example an interactive pop-up help screen containing a predictive hint in relation to the direction of movement and orientation of the Engaged Particle by demonstrating the potential final “rest state” of the Particle.

[0064] FIG. 12 shows by way of example, the partially completed round of game play with two completed Steg Objects and the next Falling Particle.

[0065] FIG. 13 shows by way of example a completed round of game play where the bottom row of the Playing Field has Steg Objects present.

[0066] FIG. 14 shows the algorithmic flowchart of the game play process.

[0067] While the present invention will now be described in detail with reference to the figures, it is done so in connection with the illustrative embodiments/arrangements. Where an embodiment/arrangement represents a single dimension or game, it is envisaged that a plurality of dimensions or games may exist.

DETAILED DESCRIPTION

[0068] Preferred embodiments of the present invention are now described with reference to the drawings. The following detailed description in conjunction with the figures provides the skilled addressee with an understanding of the invention. It may be evident, however, that the invention may be practised without these specific details provided. In other instances, well-known events and devices are shown in a flow chart in order to facilitate describing the invention.

Definitions

[0069] The language used henceforth relies on the usage of terminology not akin to current day common usage of particular terms; thus, the inventors include a definition of certain terminology in a table as shown by way of example in Table 1.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquiesced Particle</td>
<td>Acquiescence is the state of a Particle achieved when the Cursor has accessed and combined with a Falling Particle to form a Cursor-Particle complex. This complex is known as an Acquiesced Particle when it enters a state of rest (that is, it is no longer falling towards the bottom of the Playing Field), prior to the player determining the ensuing status of the Particle.</td>
</tr>
<tr>
<td>Attribute</td>
<td>The characteristic(s) of the Particle or Cursor that will change depending on the state of the game play, e.g. colour, pattern, brightness, contrast, size, animation, or accompanying sound, musical tone, series of notes, piece of music, etc.</td>
</tr>
<tr>
<td>Centre of Gravity (COG)</td>
<td>Both Falling and released Particles will “fall” from the top of the Playing Field towards the base of the Playing Field in a vertical direction (that is, along a column of the Playing Field). A Cursor must be aligned with and move at the same rate as a Particle in order for the COG of the Particle and Cursor to be aligned so they are enabled to begin the process of Engagement.</td>
</tr>
<tr>
<td>Contour Interfaces</td>
<td>The Contour of a Particle is its perimeter or boundary. A Contour Interface is the common boundary to adjoining Particles.</td>
</tr>
<tr>
<td>Cursor</td>
<td>A moveable graphical element of the invention, which is enabled to be actively manipulated by the player. The player is enabled to use a Cursor manipulator to: 1. alter the Attributes of the Cursor (for example, its colour, pattern or accompanying music); and/or 2. direct the movement of an Engaged Particle.</td>
</tr>
<tr>
<td>Degree(s) of Freedom (DOF)</td>
<td>The number of independent ways in which a Particle is enabled to be: 1. moved, e.g. horizontal, vertical, rotational (Positional Degrees of Freedom); and/or 2. represented, e.g. size, colour, musical accompaniment, or other Attribute (Attribute Degrees of Freedom).</td>
</tr>
<tr>
<td>Engaged Particle</td>
<td>Engagement is the state of a Particle after Acquiescence. An Acquiesced Particle becomes an Engaged Particle when the player uses the Cursor to direct the movement of, or to manipulate one or more Attributes of, the Acquiesced Particle.</td>
</tr>
<tr>
<td>Falling Particle</td>
<td>A Particle appearing randomly in any column’s top row and proceeding to move down the same column of the Playing Field. A Falling Particle has only one positional degree of freedom, being restricted to falling vertically towards the base of the column.</td>
</tr>
</tbody>
</table>
TABLE 1-continued

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmonic Concurrence</td>
<td>The state in which one, if not all, of the Attributes of two graphical elements present in the Playing Field concur. The concurrence is enabled to be between two of the same type of graphical element (e.g. two released Particles) or two different types of graphical element (e.g. a Cursor and a Falling Particle).</td>
</tr>
<tr>
<td>Particle</td>
<td>The fundamental graphical element of the present invention. A Particle is initially launched and transiently present in the top row of the Playing Field. Each Particle has its own range of Attributes, which are initially randomly generated. The Particle’s Attributes are also enabled to be manipulated by a player according to his or her individual game plan. This is enabled to only occur after the player has engaged the Particle with the Cursor. It is the strategic arrangement of Particles with particular Attributes that enables the player to make creative spaces and objects within those spaces on the Playing Field.</td>
</tr>
<tr>
<td>Playing Field</td>
<td>The space in which all game play takes place. The Playing Field is enabled to be viewed on at least part of a video screen, computer graphical user interface or an alternative means of displaying computer graphics including television and other gaming devices such as an interactive video or a gaming platform screen.</td>
</tr>
<tr>
<td>Steg Object</td>
<td>The object formed within a Steg Space, by the strategic arrangement of Particles with a selected Attribute or Attributes. Steg Objects include visual images and/or arrangement(s) of musical tones.</td>
</tr>
<tr>
<td>Steg Space</td>
<td>A contained space bounded by a conglomeration of Particles that has been strategically assembled by the player, Particle by Particle. Since Particles vary in Attributes such as size and shape, the common boundary (Contour Interface) between adjoining Particles may not uniformly run the length of adjoining Particles, resulting in the formation of spaces between the Particles. Steg Spaces include visual “spaces” in images or auditory “spaces” (silence) in an arrangement of Particles with sound Attributes.</td>
</tr>
<tr>
<td>Transition</td>
<td>The state in which a Particle begins to fall towards the bottom of the Playing Field. Movement is wholly restricted to the vertical trajectory.</td>
</tr>
</tbody>
</table>

[0070] The terms defined in Table 1 above are denoted with the use of capitalisation throughout the document. If a term is not capitalised then its plain meaning is to be construed, unless otherwise specified.

[0071] Previously known systems for providing computer games suffer a number of disadvantages as set out in the section entitled “Description of prior art”. The inventive method and system provides a means for overcoming those deficiencies or an alternative method and system, and apparatus for operating such method and system, for an image-creation game.

[0072] The elements of the invention are now described under the following headings:

Playing Field

[0073] In the present invention, the game play takes place on a Playing Field, which is enabled to be viewed on at least part of a video screen, computer graphical user interface or an alternative means of displaying computer graphics including television or other gaming device. The Playing Field in this preferred embodiment is divided into rectangular co-ordinate space with defined horizontal allocations or rows and defined vertical allocations or columns. A cell is the area of intersection between a column and a row.

[0074] The inventors envisage that other assemblies and embodiments of the Playing Field will exist with other co-ordinate geometry that is not limited to Cartesian (rectangular co-ordinate) geometry alone. Nor is the Playing Field limited to horizontal and vertical allocations, but may be arranged in multiple dimensions and involve different and multiple forms of co-ordinate geometry including curvilinear co-ordinate geometry, which is based on the intersection of curves; various forms of polar co-ordinate geometry; and Plücker co-ordinate geometry, which represents lines in Euclidean space (space with three or more dimensions).

[0075] The Playing Field has graphical elements which are enabled to be both visual and audible including:

[0076] a) the visual components present in the Playing Field and include the Cursor, all forms of Particles and the Steg Objects;

[0077] b) one or more sound Attributes.

[0078] The Playing Field supports the following functional features:

[0079] 1. the display of visual Attributes of graphical elements (that is, the Cursor, Particles, Steg Objects and Steg Spaces) so they are enabled to be seen by the player(s) and others;

[0080] 2. the transformation of sound Attributes of graphical elements into audible sound that is enabled to be perceived by the player(s) and others; and

[0081] 3. the foundation space within which Steg Spaces and Steg Objects, perceived by the player(s) and others as visual images and/or symphonic occurrences, are enabled to be created through game play.

Particle

[0082] A Particle is enabled to consist of many graphical possibilities and is only confined by the Playing Field’s pixel
makeup. Randomly generated Particles appear on the Playing Field and must be Engaged to be manipulated by the player.

A Particle has its own specific range of Attributes. In this assembly, a Particle’s Attributes include:

1. positional Degrees of Freedom (PD0F), including movement in the horizontal, vertical and/or rotational vectorial planes; and

2. Attribute Degrees of Freedom (ADOF), including Attributes such as colour, pattern, size, musical accompaniment, etc.

When a Particle first appears on the Playing Field, it may span one or more rows and columns, or be wholly contained within another Particle (an “intracellular Particle”). At least part of the Particle will initially be contained in the top row, although the Particle’s horizontal position along the top row will be randomly allocated. The Particle will start to undergo Transition into a Falling Particle, by falling towards the bottom row of the Playing Field. The movement of a Falling Particle is limited to one positional DOF — namely, vertical movement down the same column in which the Particle first appeared on the Playing Field.

When a Particle first appears on the Playing Field, its Attributes are also initially randomly generated. Simultaneously with the start of Transition, at least one of the Attributes of the Falling Particle will change, to signify the change in state of the Particle. This is also enabled to occur when a Particle undergoes other changes in state. The player is not able to manipulate the Attributes of a Particle before it becomes Engaged. Once a Particle has become an Engaged Particle, the player is free to change any or all of the Particle’s Attributes and is not restricted with regard to colour, size, musical accompaniment, etc.

In order to take control of a Falling Particle, the player needs to “track” the downward movement of the Falling Particle with the Cursor (by matching the COG of the Cursor with that of the Falling Particle) and causing the Particle to undergo Harmonic Concurrency with the Cursor, then sequentially enter into Acquiescence then Engagement. A player is enabled to manipulate the direction of movement and the Attributes of an Engaged Particle via the Cursor. By strategically releasing Engaged Particles from the Cursor on different parts of the Playing Field, the player is enabled to use Particles to contribute to the graphical formation of Steg Spaces and Steg Objects, which collectively form image(s) or other configuration(s) of Attributes on the Playing Field.

There may be one or more Falling Particles with randomised Attributes appearing on the Playing Field at any moment in time. Falling Particles may fall at significantly different rates, introducing a level of complexity in gameplay because of the different player reaction times required. The choice of which Falling Particle to “track” is governed not just by the rate of fall but also by strategic considerations for the player, according to the player’s individual game plan. For example, a player may choose to “track” a fast Falling Particle (with a greater degree of difficulty to Engage) because the Particle has the player’s preferred Attributes such as pattern and colour, even though there is a greater number of slow moving Falling Particles that would be easier to Engage with the Cursor. In this way, players are enabled to make choices that strategically optimise their Steg Object outcome according to their individual game plan, or tailor their game plans and Steg Object outcomes to the chosen level of play.

Cursor

The Cursor is the first graphical element to appear upon initialisation of the game software program. The Cursor is a moveable graphical element of the present invention, and is enabled to be controlled by the player using a Cursor manipulator to execute his or her intended game plan.

A Cursor has the following characteristics:

1. it has a minimum of two positional DOF; allowing movement in at least the horizontal and vertical vectorial planes;

2. it enables the player to perform a multiplicity of interactive functions, including: altering its Attributes to emulate a Particle; to undergo Harmonic Concurrency with a Particle; moving an Engaged Particle along all its PD0F; altering the Attributes of an Engaged Particle; and enabling release of a Particle in a strategically suitable position;

3. it provides player feedback on game status by engaging with Particles, revealing Attribute changes, appearing and disappearing, enabling movement of a Particle through its PD0F and through other means;

4. it provides the player with the capacity to select and alter Particle Attributes.

Cursor manipulator

The player uses the Cursor manipulator to:

1 align the Cursor’s spatial and temporal co-ordinates to match those of a Falling Particle;

2. match at least some of the Cursor’s Attributes to the Falling Particle’s Attributes;

3. select the Particle for aligning spatial and temporal co-ordinates, to enable Acquiescence and Engagement of the Particle by the Cursor;

4. change any of the permissible DOF of the Engaged Particle;

5. manipulate the Attributes of the Engaged Particle; and

6. strategically release an Engaged Particle, allowing it to fall into the desired position in the Playing Field, contributing to the graphical formation of Steg Objects and/or Steg Spaces.

The Cursor manipulator, in this assembly, is a pivotal joystick in combination with at least two multi-assignable input keys that allows the game to recognise player selection input. It is envisaged by the inventors that the Cursor manipulator can be, in other assemblies, a mouse, track pad or any other means of controlling a Cursor.

Interaction Between the Cursor and a Particle

The following description sets out the sequence of events that must take place in order for a player to Engage a Particle:
1. the player uses the Cursor to seek a Falling Particle;

2. the player manipulates the Cursor’s Attributes to emulate those of the Falling Particle, so that the Cursor achieves Harmonic Concurrence with the Particle (whereby one, if not all, of the Cursor’s Attributes match those of the Particle);

3. the Cursor combines with the “conquered” Particle to form a Cursor-Particle complex in which the Cursor component becomes graphically invisible but functionally remains part of the complex, enabling the player to subsequently Engage the Particle; and

4. the Cursor-Particle complex becomes an Acquiesced Particle, meaning that it enters a state of rest (that is, it is no longer falling towards the bottom row of the Playing Field and appears to “hover” or float in its current position) prior to the player determining the ensuing directional or representational status of the Particle;

5. the Acquiesced Particle becomes an Engaged Particle when the player uses the Cursor to manipulate the direction or any of the Attributes of the Particle.

Engagement

Once the state of Engagement has been achieved, at least one of the Attributes of the Particle will change, to signify the change in Particle state from Acquiescence to Engagement. The changes include, but are not restricted to, changes in colour, pattern, intensity or brightness, or changes in accompanying sound Attributes such as musical tone.

The player is enabled to manipulate the movement and/or Attributes of the Engaged Particle by choosing the appropriate multi-assignable Cursor input key or binary device to manipulate the Cursor. The player is enabled to use the Cursor to:

1. deselect the Engaged Particle, allowing it to freely fall down towards the desired position;

2. move the Engaged Particle along a path defined by the vectorial axis or axes chosen by the player (in this assembly, in the horizontal and/or vertical planes);

3. rotate the Engaged Particle around a selected pivot point; or

4. move and rotate the Engaged Particle;

5. change one or more Attributes of the Engaged Particle.

Particle release and placement

In the present invention, the player can release the Engaged Particle from the Cursor, allowing the Particle to freely fall down to the chosen position along the bottom of the Playing Field. In this way, the player is enabled to assemble Particles of a particular size, shape or other combination of Attributes into a meaningful configuration, to create Steg Spaces and Steg Objects (e.g. an image with accompanying music). As game play advances, the accumulation of Particle configurations from earlier game rounds causes released Particles to be deposited higher up the Playing Field until the Playing Field is filled with Steg Objects and Spaces.

The arrangement of Particles on the Playing Field is determined solely by the player’s individual game plan and level of skill. The game processes provide for creative expression through:

1. the selection of Particles with given initial Attributes;

2. the subsequent manipulation of Particle Attributes (including color, pattern, sound) by the player; and

3. the strategic assembly of Particles with specific Attributes.

This results in the formation of creative visual or pictorial configurations (of colours, patterns, shapes, luminosity, and so on) in the Playing Field. These visual configurations (images) are enabled to be created independently or in combination with auditory configurations (“musical symphonic occurrences”) of sounds, tones, notes, musical arrangements, etc.

The present embodiment has the means to provide for the completion of numerous and variable iterations of the above-stated Particle arrangements. This enables the player to determine his or her own creative outcome (game objective), manifest as a pictorial and/or musical symphonic occurrence within the Playing Field.

Help Screen

The present invention includes an interactive help system in the form of a help screen to guide the player through the game. This help system is enabled to take the form of a game-state contextual help with interactive functionality. In one assembly, the contextual help system will take the form of pop-up screens or sub-screens containing information to assist the player. In other assemblies, the help system is enabled to take the form of voice prompts and instructions, pop-up balloons, animated Particles to play out different game scenarios, or other forms of context-sensitive information to help the player.

In the present invention, the help information will be tailored to the particular game state relevant to the player. This is to provide the player with hints as to the range of possible outcomes from various game plays available to the player, to show the player the next objective or range of possible next moves, or to assist with game strategies, etc. The current assembly’s contextual help pop-up sub-screen has a temporary overlay, with a contrasting background to the Playing Field as viewed on the game display device. The help system provides a human-readable help screen which is actuated when a combination of input devices are activated.

Game Play

The game play software program for the present invention is installed on hardware such as a computer or other programmable device that are enabled to operate the game software and display the graphical elements. After an initialisation routine, which is necessary to establish a stable hardware platform and known software state, the game display Playing Field is initially clear of Particles.
FIG. 1 shows a rectangular Playing Field (30) onto which has been presented (launched) a graphical element known as a Particle (10). This Particle (10) is in its initial state. In this assembly of the invention, this means that the Particle is at least partially located in the top row of the Playing Field (30) and has randomly allocated Attributes (e.g., colour, shape, fill pattern). The initial horizontal position of the Particle along the top row is also randomly allocated. The Cursor (20) is visible on the Playing Field (30), towards the bottom right-hand corner. The player can direct the position or movement of the Cursor (20) within the Playing Field (30) using a Cursor manipulator. However, the player cannot direct the position, movement or any Attribute of the illustrated Particle (10) using the Cursor (20), because the Particle (10) is still in its initial state.

FIG. 2 shows the initial Particle has entered Transition to become a Falling Particle (50). This means that the Particle (50) has commenced “falling” towards the bottom row of the Playing Field (30). To signify the change in state from an initial Particle to a Falling Particle, the Particle (50) has changed at least one Attribute (in this case, colour and pattern). In the present assembly, the Falling Particle (50) is restricted to travelling vertically down the same column in which it initially appeared. If the player is unable or chooses not to Acquiesce or Engage the Falling Particle (50) using the Cursor (20), the Falling Particle (50) will disappear when it reaches the bottom row.

FIG. 2 also shows by way of example the Cursor (20) seeking and preparing to access the Falling Particle (50). However, the player cannot yet use the Cursor (20) to “latch onto” or combine with the Falling Particle (50) because the Cursor’s Attributes are not in Harmonic Concurrency with the Falling Particle’s Attributes. In order for a Cursor (20) to access a Falling Particle (50), a verification procedure is required. This procedure verifies that the Attributes of the Cursor (20) and the Falling Particle (50) are aligned. Upon positive verification, the player can use the Cursor (20) to “acquire” (or “latch onto”) the Falling Particle (50). Upon acquisition of the Falling Particle (50) by the Cursor (20), the Particle stops falling and this Cursor-Particle complex becomes an Acquiesced Particle.

FIG. 3 shows by way of example an Acquiesced Particle (60). This Particle (60) was formed when the Cursor “latched onto” or combined with a Falling Particle. In the present assembly, this step is achieved when the player uses the Cursor manipulator to make the Cursor’s Attributes emulate the Falling Particle’s Attributes. This includes aligning the Cursor’s Centre of Gravity (COG) with the COG of the Falling Particle. When one, if not all (depending on the level of game difficulty), of the Attributes of the Cursor and the Falling Particle have been verified to concur, the Falling Particle is said to have achieved a state of Harmonic Concurrency with the Cursor. The player is then enabled to cause the Cursor to “latch onto” or combine with the Falling Particle. The Cursor-Particle complex so formed is known as an Acquiesced Particle (60). By definition in the present assembly, an Acquiesced Particle (60) has entered a state of rest (that is, has stopped falling down the vertical plane of the Playing Field) prior to the player determining the ensuing movement or Attributes of the Particle.

The Cursor has become invisible on the Acquiesced Particle (60) but remains functional, to enable the player to subsequently Engage the Acquiesced Particle (60). Once the Falling Particle becomes an Acquiesced Particle (60), the Particle’s Attribute(s) will change to signify the change in state to Acquiescence. This change is seen from FIG. 2 to FIG. 3, where the Acquiesced Particle (60) in FIG. 3 appears as a lighter shade of grey than the Falling Particle (50) in FIG. 2.

When the player deliberately uses the Cursor to direct the movement or change an Attribute of the Acquiesced Particle (60), the Particle becomes an Engaged Particle. This change in state is signified again by at least one change in Attribute of the Engaged Particle from the Acquiesced Particle (60).

FIG. 4 shows by way of example an Engaged Particle (70) being directed towards the baseline or bottom row of the Playing Field. The player directs the Engaged Particle (70) by using the Cursor manipulator. An Engaged Particle (70) is not restricted in its DOF; granting the player full freedom in his or her ability to direct movement of the Particle (70).

FIG. 5 shows by way of example the Engaged Particle (70) being directed horizontally across the Playing Field by the player. This enables the player to align the Engaged Particle (70) with the preferred column of the Playing Field. The player uses the Cursor to manipulate the position of the Engaged Particle (70). In this assembly, the Cursor is directed towards the preferred column by using a Cursor manipulator (e.g. a joystick) to align and orient the Engaged Particle (70). Depending on the status of game play, this may include the arrangement of an Engaged Particle (70) with Particles previously arranged in the Playing Field by the player, to form a meaningful configuration of Particles.

FIG. 6 shows by way of example a released Particle (80). The release sequence involves disengagement of the Engaged Particle from the Cursor (20) and starts by activation of the appropriate Cursor manipulator input key or binary device. In this illustration, the released Particle (80) has taken the Attributes of the original Particle in its initial state, as first shown in FIG. 1.

FIG. 7 shows by way of example a released Particle (80) that has been disengaged from the Cursor (20). A released Particle (80) will enter into Transition, in which movement is wholly restricted to the vertical trajectory. The velocity of Transition is determined by the game state. For example, in this assembly, an Engaged Particle that was fast falling as a Falling Particle will be fast falling upon release after Engagement. The Cursor (20) is re-manipulated to seek out the next randomly presented Particle (90) when it appears on the Playing Field (30). The previously released Particle (80) continues in free fall towards the base line.

FIG. 8 shows by way of example the released Particle (80) at a final rest state at the base of the column in which it was travelling. The player is not able to direct movement or orientation of the Particle (80) after release from the Cursor (20). FIG. 8 also shows Engagement of the next randomly presented Particle (100). The Attributes of this Engaged Particle (100) have changed since the Particle first appeared on the Playing Field (illustrated in FIG. 7 as Particle (90), shown in its initial state). A third Particle (110) is present on the Playing Field as a Falling Particle (110), since it has entered Transition and is moving towards the baseline.
An objective of the game is to bring the Falling Particle (100) to a rest state on the base line next to released Particle (80), such that released Particle (80) and Particle (100) are aligned on the base line in the manner illustrated in FIG. 8.

FIG. 9 shows by way of example the advancement of game play resulting in the arrangement of two particles (previously particles 80 and 100 as shown in FIG. 8) on the base line. These particles fuse to form one assembled particle (120), which is the beginning of the process of Steg space formation. The game play continues with another falling particle (130) being presented and yet another particle being engaged (140) and directed to the base line by the player.

When a rest state particle is oriented correctly and aligned adjoining another rest state particle, the resulting assembly of particles (with given specific attributes) become a single entity (120). Each successful orientation and alignment of a particle to a combined entity will also become part of that entity. This is termed the particle assembly process.

FIG. 10 shows by way of example the creation of a Steg object (150) within a completed Steg space. In this particular embodiment the recognizable Steg object (150) is a cross, but it is to be understood that a Steg object is enabled to be any shape or attribute formed within a Steg space.

Successive iterations of the particle assembly process will result in the formation of further Steg spaces and Steg objects.

FIG. 11 shows by way of example an interactive pop-up help screen (160). This example contains a predictive hint in relation to the direction of movement and orientation of the engaged particle (140) by demonstrating the potential final rest state position of particle 140 (shown as the dark area within the bottom right-hand corner of the help screen).

FIG. 12 shows by way of example the partially completed round of game play with two completed Steg objects (170) and the next falling particle (180).

FIG. 13 shows by way of example a completed round of game play where the bottom row of the playing field (30) is filled with particles that have been aligned with other rest state particles. This results in the assembly of particles (with given specific attributes) which become a single entity by undergoing the particle assembly process that contains Steg objects. These Steg objects consist of a cross (150), a large circle (200), a triangle (210) and a small circle (220).

With successive rounds of game play, the play state is advanced by the assembly of particles above the previous round's configuration of particles. It is envisaged that the completion of three rounds of game play will provide the challenge and stimulation necessary to hold the interest of the game player, but the ultimate number of game rounds is determined by the player depending on the player's skill level and individual game plan.

With advancing game play, the game software introduces obstacles to the player's game plan choices. For example, in this assembly, a particular shaped Steg object such as a cross (190) cannot be assembled on top of a similarly shaped Steg object. This obstacle forces the player to make creative decisions as to where to arrange and assemble released particles.

Any attempt by the player to place a particularly shaped particle entity or Steg objects directly above a similarly shaped entity or Steg object will result in the entity or Steg object passing through the base line and disappearing, in a similar manner to a falling particle. This wasting of an opportunity to place a particle entity or Steg object in the desired position is termed the "wasting of a life". A falling particle has a "life", expressed as the time interval from launch until it falls through the base line. In addition, each round of game play has a "life" or specific period of time in which game play must be completed. Each game round is enabled to have a limited number of "lives" and/or life term (time period) depending on the level of difficulty set by the player.

FIG. 14 shows the algorithmic flowchart of the game process. The steps of the game play are the result of a software program that utilizes the functional algorithm displayed in the flowchart.

Levels of Play

The game play will present progressively harder levels; progression to the next level will be allowed when a row of Steg spaces and Steg objects is completed. The level of difficulty will be advanced in at least three further ways. For example, in this assembly, by changing the following game characteristics, such as:

1. Decreasing the time interval that it takes a new particle to appear on the screen;
2. Altering the attributes of the particle on presentation, for example, changing the attributes of the particle (180) as shown in FIG. 12; and
3. Introducing additional restrictions in the options available to the player, such as disallowing similarly shaped entities or Steg objects to be stacked on top of each other, either directly on top of each other or indirectly above each other, such as on the first and third round layers, during successive and non-consecutive rounds.

Multiplayer

The game is enabled to use a peer to peer network link to allow more than one player to engage exclusively non-Acquiesced particles on the same game playing field. It is envisaged by the inventors that in other assemblies there will be other means of networking players to the game space playing field using such networking technologies such as the internet, Ethernet, client-server, telecommunications technology and other means.

Each player will share a view of the other player's screen and work collaboratively with the other player(s) to place the Acquiesced Particle in the desired position. The playing field has the means to provide for a player assisted mechanism to differentiate between individual player contributions within a collaborative environment. The collaboration of the efforts of multiple players to achieve complex Steg State levels is possible.
[0155] As this particular game play is the initial one based on the introduction of Steg Space principles, it is envisaged that complex constructs embodied in advanced graphics systems will be made possible. To that end, this simple but challenging game is to be viewed as the precursor game to a series of games and creative endeavours.

Alternate Usage

[0156] The inventors envisage that the principles of image creation based on Steg Space and Steg Object formation could be utilised to assist in the building creative solutions in fields of endeavour beyond gaming—for example, in the cinematic industry, education, engineering and architecture.

[0157] The present invention is enabled to facilitate educational processes by contributing to the enhancement of the general creative approach of a player, through encouraging the player to think laterally to assist the player in discovering the principle of creativity that exists within the field of different spatial realities. Engineering, architecture and electronics are but a few disciplines that could benefit from the utilisation of Steg Space principles by directing the creative focus away from already known spatial reality towards an unknown one of a spatially derived potential, capable of producing further embodiment.

[0158] This computer game has purposefully been kept simple and abstract in order to be a useful tool in problem solving.

1. A computer game apparatus including:
   a) a programmable device that executes game instructions;
   b) a visual display that enables a Playing Field and visual Attributes of graphical elements of the game to be viewed;
   c) a Cursor manipulator that enables movement and Attributes of a Cursor and other said graphical elements of the game to be manipulated by a player;
   d) one or more speakers that enable sound Attributes of said graphical elements to be transformed into audible sound; and
   e) a game process that enables the strategic assembly of a subtype of said graphical elements known as Particles to create:
      i) one or more enclosed spaces, termed Steg Spaces; and
      ii) one or more objects, termed Steg Objects within said Steg Spaces
      on said Playing Field.

2-64. (canceled)

65. A computer game system including:
   a) a programmable device that executes game instructions;
   b) a visual display that enables a Playing Field and visual Attributes of graphical elements of the game to be viewed;
   c) a Cursor manipulator that enables movement and Attributes of a Cursor and other said graphical elements of the game to be manipulated by a player;
   d) one or more speakers that enable sound Attributes of said graphical elements to be transformed into audible sound; and
   e) a game process that enables the strategic assembly of a subtype of said graphical elements known as Particles to create:
      i) one or more enclosed spaces, termed Steg Spaces; and
      ii) one or more objects, termed Steg Objects within said Steg Spaces on said Playing Field.

66-96. (canceled)