

A9 - Legal and Regulatory Analysis

Year: 2024 Semester: Spring Team: 01 Project: Dungeon Crawler
Creation Date: 3/21/2024 Last Modified: April 27, 2024
Author: Landon Carre Email: lcarre@purdue.edu

Assignment Evaluation: See the Rubric in the Brightspace Assignment **1.0 Regulatory Analysis**

The Dungeon Crawler will almost certainly need to obtain certification from the Consumer Product Safety Commission (CPSC). For all toys intended for use by children of ages 12 years or younger a Children's Product Certificate is needed from the CPSC. Although The Dungeon Crawler's age range was intended to have a slightly older lower age limit, it would be prudent to obtain this certification to expand the range of the target audience. This would keep in mind younger children deemed ready for such a gameboard by their parents and for children playing with their older siblings/parents. Obtaining this certificate allows us to ensure many testing bases are covered. The Children's Product Certificate requires extensive testing of the product as well as third-party testing. Some categories for third-party testing relevant to the Dungeon Crawler are listed below:

- Accessible Edges
- Accessible Points
- Magnets
- Wires and Rods
- Small Objects

There are many other categories and others that are not third-party requirements [1].

The procedure for our team in seeking out this certification would start with seeking expert help and opinions first and foremost. There are several companies that can help identify the scope of testing and third-party testing needed as well as conduct tests themselves. One such company like Intertek is a U.S. Consumer Product Safety Commission that is an accredited third-party lab that provides an all-in-one solution to getting your team educated on regulation compliance to go to market, conducting third-party testing, and certifying your product [2].

A service provider such as Intertek would make the process as simple as getting in contact with them to have them educate us on how to obtain certification based on our own product, The Dungeon Crawler, and organize third party testing through them.

As mentioned, besides certifications for products for children there is most likely a need for general safety testing that can ensure the product is usable at a more global level. Through the IEC The Dungeon Crawler three different types of tests are conducted to ensure safety, reliability, and performance:

- Type tests
- Routine Tests

- Field tests (market surveillance)

Receiving a certificate from IEC will allow The Dungeon Crawler to potentially access global markets directly and comply with national authorities and regulators as well as retailers and vendors. A certification through IEC is working to become a single report that is used globally and would be a great asset to marketing the product. It would allow the device to be market in other countries outside of the U.S. as well as provide important safety verification [3].

2.0 Legal Liability Analysis

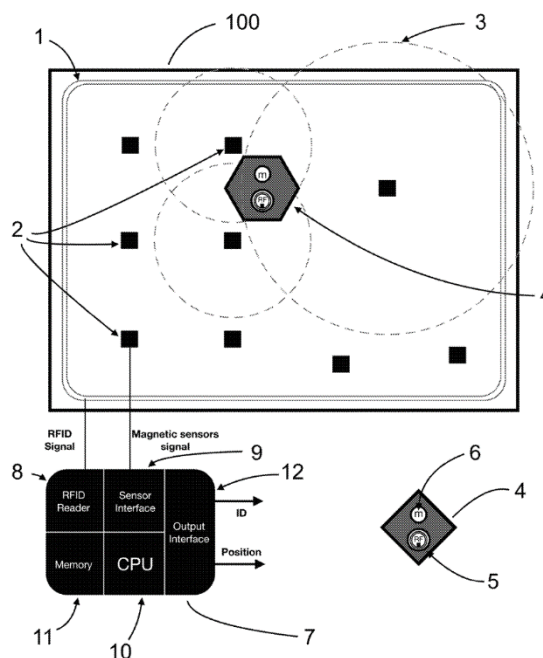
2.1 Analysis of Patent 1

US Patent Application US10527685 B2:

Patent Title: “Contactless Detection System Of The Position Of Objects On A Surface”

Patent Holder: Enrico Garofalo

Patent Filing Date: January 7th, 2020.



This patent describes a system that integrates RFID and magnetic sensing within the surface. An object with an RFID tag and magnet is placed on the surface, and an RFID antenna under the surface detects the identity of the object based on its tag. After identification, the system detects the most newly excited magnetic sensor under the board to determine the identified object's position. The control electronics in the system include the RFID antenna, an interface for

acquiring the magnetic sensors' positions, a CPU to process data, a memory to store positional data, and an output interface to transmit the data to a third-party device.

Potential Infringement: The Dungeon Crawler potentially infringes upon the following:

1. Purpose of detecting position of tokens on a surface.
2. Magnetic sensors are used to read magnets in moveable tokens.
3. Use of memory to store positional data.

This approach is very similar to our magnetic sensing and data export approach. However, the magnetic positional sensing as detailed is a bit different than the one implemented for The Dungeon Crawler. The Dungeon Crawler, while it does use magnetic sensors for detection, does not have overlapping magnetic sensing zones or use them in conjunction with RFID. Instead, the Dungeon Crawler is focused on sensing tokens in discrete hexagonal zones using magnetic sensors rather than using a system to determine an exact location on an undefined surface. This makes the purpose of the two designs fundamentally different even though magnetic sensors are used to take readings in both. Additionally, this patent's approach lacks any type of board customization that we will provide in our design [4].

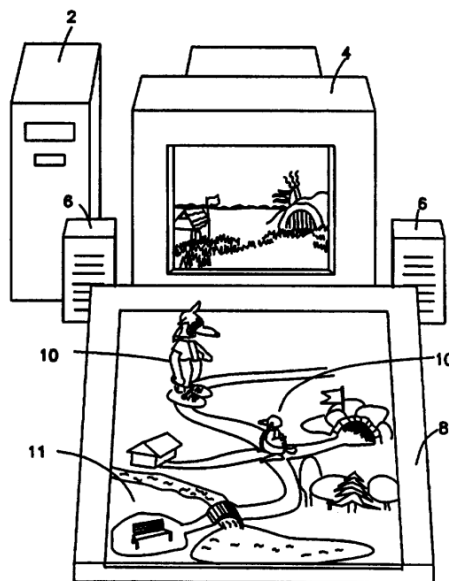
2.2 Analysis of Patent 2

WO Patent Application WO1996003188A1:

Patent Title: "Computerized Game Board"

Patent Holder: Pinhas Gilboa

Patent Filing Date: July 25th, 1995



This patent describes a board game system where an apparatus can discreetly detect the orientation and position of a toy figure on a game board and trigger an audio/visual response to the toy's position. An excitation coil is placed under each cell of the game table, and each game piece has a transponder. The coils generate query signals received by the game pieces, then the transponders send out signals to an antenna associated with the game board. The coils are associated with rows and columns to determine the x and y positions of game pieces on the board. While this patent is nearly 20 years old, its system for position identification is very unique, simple, and innovative.

Potential Infringement: The Dungeon Crawler potentially infringes upon the following:

1. The use of excitation coils to determine token position on a board.
2. The use of positional data of tokens to trigger a visual response.
3. The use of a computer is used to facilitate an interactive board game.

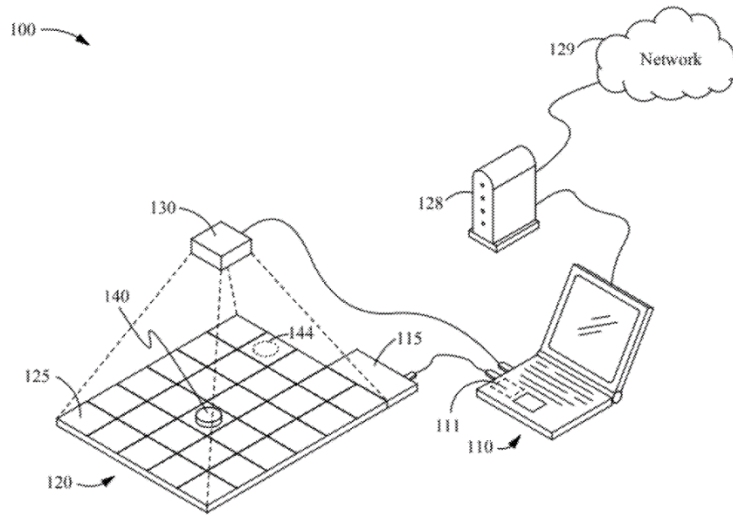
The Dungeon Crawler uses a substantially similar method of determining position as the patent described above. The Dungeon Crawler divides its board into hexagonal regions and then uses hall effect sensors to read a digital reading to determine the position of tokens. The patent above does something substantially the same by laying out the underside of its board to measure readings of tokens in an x-y row-column format making readings discrete, but the patent's method uses excitation coils instead. The Dungeon Crawler generates visual stimulus using positional token data but generates visuals on the board itself rather than on a computer. This design also requires a more extensive setup for players as the computer is essential and constantly needed to proceed gameplay. Our design seeks to limit unnecessary complexity by only involving the online interface at the start and end of gameplay [5].

2.3 Analysis of Patent 3

Patent Title: “Board game with dynamic characteristic tracking”

Patent Holder: Michel Martin Maharbiz, Steve Jaqua, Theodore Morichau-Beauchant

Patent Filing Date: September 7th, 2011



This patent describes an electronic board game where game objects have globally unique identifiers with associated characteristics that can be altered during gameplay. Individual game pieces and terrain pieces are detected by identifying sensors under the board, and a projected layout of the game is updated based on player and terrain piece positions. The history and characteristics of individual game objects are also recorded in memory to allow for saving and loading games. The player can also interact and alter virtual versions of the game pieces on an online interface.

Potential Infringement: The Dungeon Crawler potentially infringes upon the following:

1. Purpose of detecting position of tokens on a surface.
2. Sensors are used to read magnets in movable tokens.
3. Use of memory to store positional data.
4. Customizable game board display

This product functions nearly identical to the first patent document regarding sensing game tokens and pieces. However, this product adds the map customization that we seek to add in our

own project. The downside to this design is the added complexity of setup with the projector, rather than integrating the display into the board. The projection of the map display modifies the perception of the patent design to differ from our own design even if the sensing system has similarities. The visual part of each gameboard and changes made given token positional data can be considered the overall output and therefore a good gauge of purpose for each design. Since the boards display is seen differently and generated differently it can be said the outputs are quite different and each design's purpose is different. Following this logic it is possible to determine that although a customizable board display is incorporated in they are substantially different [6].

3.0 Sources Cited:

- [1] "Toy Safety Business Guidance & Small Entity Compliance Guide," U.S. Consumer Product Safety Commission, <https://www.cpsc.gov/Business--Manufacturing/Business-Education/Toy-Safety-Business-Guidance-and-Small-Entity-Compliance-Guide> (accessed Mar. 23, 2024).
- [2] Consumer product safety improvement act (CPSIA) testing and compliance solutions, <https://www.intertek.com/cpsia/> (accessed Mar. 23, 2024).
- [3] "Testing & certification overview," IECEE, <https://www.iecee.org/certification> (accessed Mar. 23, 2024).
- [4] "WO1996003188A1 - Computerized Game Board," Google Patents, <https://patents.google.com/patent/WO1996003188A1/en?q=WO%2BPatent%2BApplication%2BWO1996003188A1> (accessed Mar. 23, 2024).
- [5] "WO1996003188A1 - Computerized Game Board," Google Patents, <https://patents.google.com/patent/WO1996003188A1/en?q=WO%2BPatent%2BApplication%2BWO1996003188A1> (accessed Mar. 23, 2024).
- [6] "US9849369B2 - board game with dynamic characteristic tracking," Google Patents, <https://patents.google.com/patent/US9849369B2/en?q=%2BUS%2BPatent%2BApplication%2BUS9849369B2> (accessed Mar. 23, 2024).