EECE 491 Project Proposal

Project Title (WIP)

RFIDice Tray

Project Summary

RFID'd dice are rolled onto the RFIDice Tray and the RFIDice Tray displays a random number based on the type of dice the RFID of the die is labeled as. The RFIDice tray is a neat desk toy and is useful for any game that requires dice.

Project User(s), Problem Definition, Goals, and Features

RFIDice Tray must be accessible to casual board game fans.

More RFID dice can be added to the system for as many types of dice as the user desires. The RFIDice Tray differs from currently available RFID dice product by allowing cheap dice to be added to the system. Other products tend to have the dice detect the number the dice actually rolled and output that information. The dice of the RFIDice tray will have one RFID sensor and the tray will do all the random number processing.

The dice tray must also have an "add up" button to add up successive die rolls and a "worst of" and "best of" button to choose from the worst and best rolls of successive rolls respectively.

Project Constraints

The dice tray needs to respond to the RFID dice when they come into contact with the RFID sensor and the tray needs to respond within a reasonable time so that the user can see the system is working.

The dice tray and dice need to be made of a material that won't easy be destroyed after throwing the dice into the dice tray repeatedly. The dice tray must be small enough to fit on a table along with a large game board.

The dice tray must be powered by USB power or a 9 volt battery and must last at least 8 hours per battery.

Project and Responsibilities

The RFIDice Tray dice could be easily replaceable because they are cheap to create. Cheap replaceable parts could increase waste so the dice need to be durable so as to not be replaced often.

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Bibliography

RFID dice and other dice roll detection trays are not an original idea. Here is listed a few sources of research to compare this project against.

M. Murdock, *Digital Detection of Physical Dice Rolls Via Conductive Dice Tray - Disney Enterprises, Inc.*, 20-Aug-2015. [Online]. Available: https://www.freepatentsonline.com/y2015/0231486.html. [Accessed: 23-Oct-2020].

http://www.vs.inf.ethz.ch/publ/papers/hinske-pergames07.pdf