Dynamic Maze: A Dynamic Puzzle for Distanced Play

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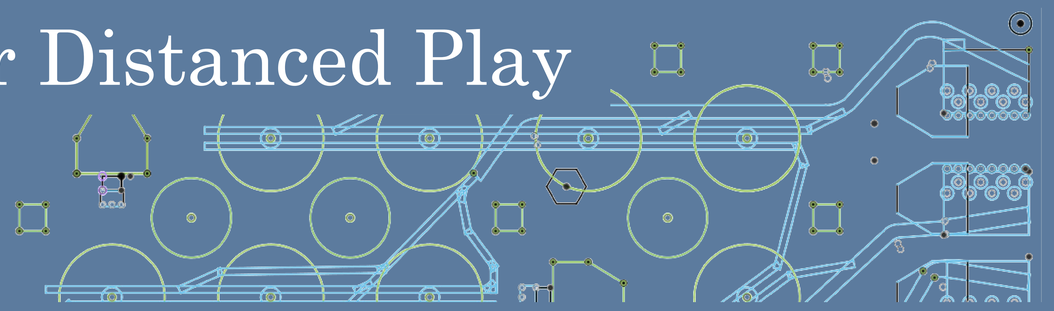
Project : Boardgames for Distanced Play (ME-12-HSAM-052)
Discipline: Master of Mechatronics Engineering



Why Distanced Play?

- Physical distance limits opportunities for in-person boardgaming
- Few commercially available products
- Enthusiasts are finding novel ways to adapt boardgames for remote play

What have researchers explored?

- Importance of connectedness, physicality and sociality
- Prototypes for research purposes modify existing games, rather than designing for distanced play

Dynamic Maze

- A cooperative game designed for distanced play
- Two players work together on individual actuated boards to move through a maze, collecting treasure pieces
- Communication between the boards shifts the maze according to players' positions, creating a dynamic puzzle
- Retrieving all treasures ends the game

Physicality

- In-person boardgame appearance
- Player moves physical player and treasure pieces
- Physical switch for user inputs
- Subtle metallic noise and magnetic force when the player piece is placed on the board
- Satisfying clicking noise and magnetic force when picking up a treasure

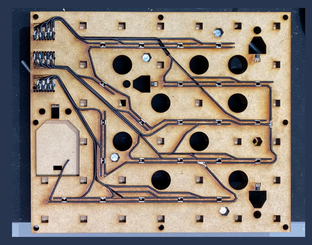
Does physical distance stop us from playing boardgames?

Boardgames could create more opportunities for social interactions if they allowed for distanced play ...

Dynamic Maze is a remote boardgame that retains the Connectedness, Physicality, and Sociality of face-to-face play.

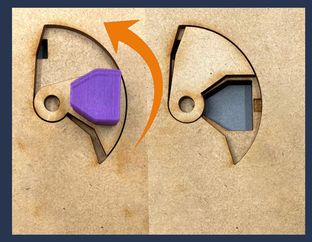
Enabling Technologies

- CAD - Design embeds electronics in and under multi-layer laser cut MDF game board to retain focus on physical play

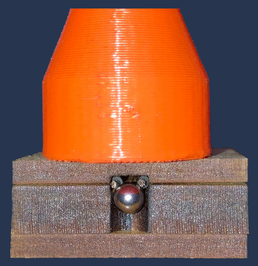


Hidden electronics embedded in the board sense location of player and treasure pieces and control servo motors

- Redboard microcontroller controls electronics
- Github - Code version control
- Bluetooth-Low-Energy - Board communication
- Servo motors - rotate walls and open trap doors according to player and treasure movements



Magnetic field sensors in the board detect treasure removal and activate trap door on the other gameboard



Magnet in player piece lifts steel ball inside the board to close a circuit, indicating player positions

Next Steps

- Enable internet access to allow true remote experience

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