

Magic Monopoly

What if “Hi, Grandma” became “Your turn, Grandma”?

A magical game night that makes distant family feel present.

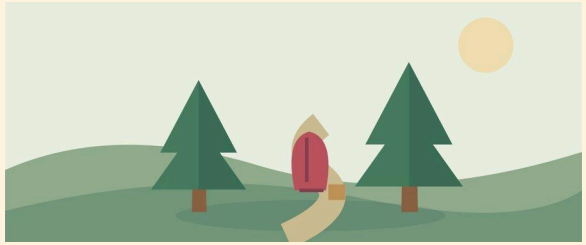
HackTX 2026

A call can still feel distant.

The world is connected. Shared family rituals can still be missing.

1 in 6

people worldwide experience loneliness.
WHO Commission on Social Connection, 2025



Calls become check-ins

“Hi, how are you? Love you. Bye.”

Distance separates the table

Grandma misses being part of the evening.

We need shared time

Something to do together, beyond an update.

Source: WHO, 2025 · who.int/news-room/questions-and-answers/item/social-connection
All-ages global estimate; Grandma is an illustrative story, not a tested participant.

Same game night. Different rooms.

Magic Monopoly links a real fairy-tale board with remote family players.

1. **A familiar table**

   Grandma keeps real dice, cards, and tokens.

2. **Family joins by phone**

   A QR code or link brings them into the game.

3. **The board responds**

   Remote actions become physical movement.

4. **The Mirror includes everyone**

   Spoken prompts make each turn a shared moment.



A familiar game becomes an invitation to stay.

Live: Grandma takes her turn.

> *“Grandma, would you like to buy Gingerbread House for 60 gold? Just say yes or no.”*
>
> The Magic Mirror

1 Join

A distant player opens the link.

2 Roll

Real dice are read; the token moves.

3 Answer

The Mirror asks. Grandma says yes.

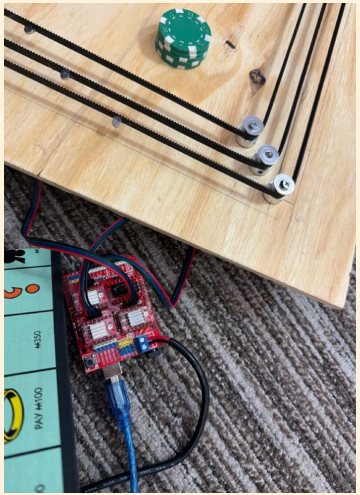
4 Share

Both views update. Everyone reacts.

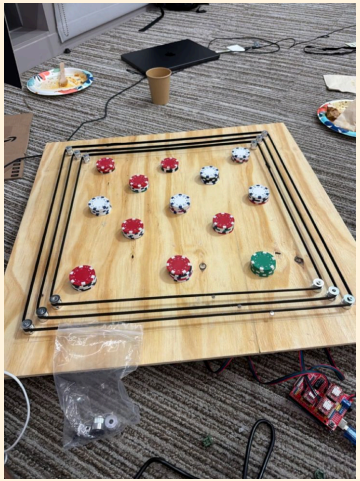
The moment to notice: “I made a move, and Grandma saw it happen.”

Hardware that makes presence physical.

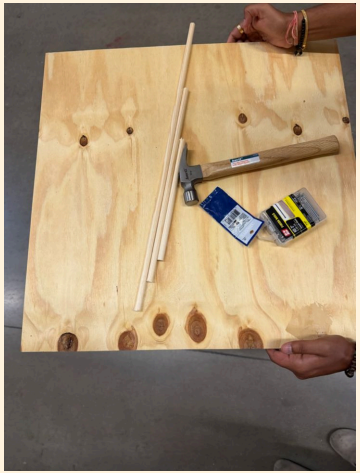
Remote choices become movement at Grandma's table.



The belt mechanism



The board assembly



Under-board assembly

Below the magic

Arduino Uno + CNC shield

NEMA-17 steppers + GT2 belts

Magnets under the board

Token movement above it

Game event → motor command → visible movement

The camera does the typing.

Grandma uses familiar objects; the system recognizes the action.

Real dice

Wait for a stable roll.

Read the dice values.

Send a roll event to the engine.

Printed cards

Read an ArUco marker.

Look up the exact card action.

Apply it when a draw is expected.

Physical action → recognized event → validated game action

One referee for every room.

A shared Python game state keeps the real board and every phone in sync.

ROLL

Validate the turn

→

MOVE

Wait for completion

→

DECIDE

Check choice + balance

→

NEXT TURN

Update every player

Rules stay in code

Balances, ownership, rent, cards, and bankruptcy are validated by the engine.
AI interprets speech and narrates events; it does not decide game outcomes.

Saved state + action history let families return to the same game.

The Magic Mirror gives the table a voice.

Grandma can say “I’ll take it” instead of navigating another menu.

Meta Muse Spark

Turns real game events into short, fairy-tale narration.
Helps interpret unclear yes/no answers.

Meta Muse Voice Transcribe

Converts spoken decisions into text.
The engine still checks that the action is legal.

ElevenLabs

Speaks the Mirror’s lines when enabled.
Browser speech is available as a fallback.

A conversation that takes turns

The mic waits while the Mirror speaks.
If an answer is unclear, the Mirror asks again.

Speech → transcript → intent → validated action

Every connection returns to the same table.



A voice, a camera, a phone, and a moving token—one shared moment.

What's next for the magic?

More ways to make distant family feel part of the evening.



Every token, on the real board

More reliable motion, corner calibration, and recovery.



A storybook of every game

An illustrated keepsake of the family's moves and memorable moments.



A Mirror that knows the family

Player names and chosen characters for more personal narration.



More games, more shared nights

Reuse the moving-token board for more classic games.

The goal stays the same: one more round together.

She didn’t need a longer call. She needed a seat at the table.

From “Hi, bye” to “One more round?”

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Magic Monopoly · Hackily Ever After

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