Interactive Dungeon and Dragon Table

By Lena912 in LivingToys & Games

Introduction: Interactive Dungeon and Dragon Table

Welcome to my interactive Dungeon and Dragons table project! This table is designed for the ultimate role-playing experience, featuring a range of innovative functions that elevate the game to a whole new level.

At the heart of the table is a large screen that displays the current game map. Thanks to an integrated touch frame, players can move their figures directly on the screen, enabling intuitive and dynamic interaction. Each figure is equipped with an RFID chip, allowing players to log in at their individual panels. These panels provide each player with personalized information and enable direct communication with the game master.

The ESPs communicate with each other via WiFi, ensuring seamless and fast data transmission. The game master has full control over the system through a specially developed website, which allows them to manage the map display, communicate with players, and adjust the game environment in real-time.

A standout feature of the table is the built-in LED strip, which enhances the game's atmosphere by visually supporting the current scene. Whether it's dark dungeons or radiant castles, the lighting adapts flexibly to create an immersive environment. Another LED strip indicates the order of players, so everyone knows exactly when it's their turn.

This table is more than just a game table – it's a gateway to a world full of adventure and fantasy. It creates an interactive and captivating environment that intensifies the shared gaming experience and makes it unforgettable.

Das ganze ist ein vor schlag wie man das ganze nutzen kann jeder einzelne teil des projektes ist aber auch alleine nutzbar ob du nun nur eine brett spiele tisch bruachst oder eine möglich keit mit deinen Spielern zu komunizeiren. Baue das nach was du gerne machen möchtest

Supplies

Interactive Table:

1. Board game Table
2. Screen (I used an old one that I still had at home)
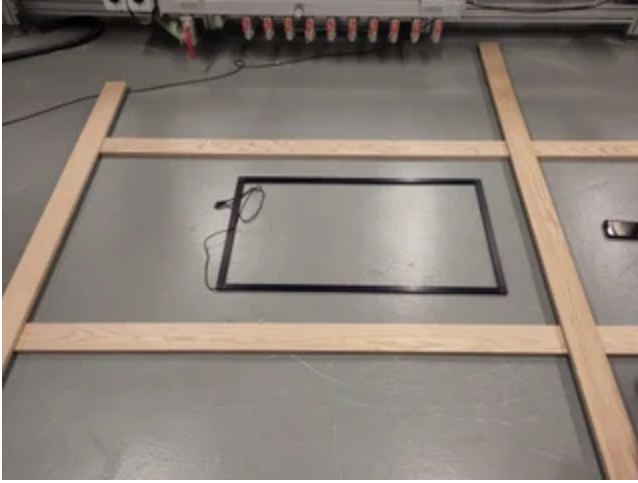3. IR Touch Frame equal to the size of the screen
4. Wood

Electronics:

1. at least one ESP 32 (D1 MINI)
2. multiple D1 MINI
3. OLED - 1.3"
4. RFID
5. WS2812B LED strip
6. cable
7.

Other Materials:

1. 3D printing PLA
2. 3D printing resine
3. screaws
4. Magnete Ø10xØ3,5x5 mm
5. Wood
6. Acryle
7. Computer

Step 1: Design the Table

In this guide, I'll show you how to build your own gaming table.

You can also use a ready-made table. If you do, skip the design and table-building steps and start with installing the screen.

Otherwise, I'd be happy to show you how I built my table. Here are a few helpful questions:

First, I thought about how big my table should be. Here are a few helpful questions:

1. How many people do we want to play with?
2. How much space do I have for the table?
3. How big is my screen?

To get a feel for the whole thing, I laid the frame and beams on the floor and tried out how big it could be. I decided on the dimensions 1.8 m by 1 m.

Then I created a sketch in Fusion.

Tisch v2

Step 2: Design of the Holding System

Next, I considered how to attach the components to the table. I decided to use a combination of clamps and magnets. To do this, I attached a metal strip to the middle board of the side sections. All holders, panels, etc., will have magnets. Additionally, they are 18 mm thick, which is about the same thickness as the gap between the board and the top.

Dabei sind aber ein paar sachen zu beachten da nicht alle holzbretter genau 18 mm dick sind und auch beim drucken die sachen etwas dicker ist daher ist es hilfreich mit ein bisschen spiel zu arbeiten oder mann schleift bei allem 0-1 mm ab. Die Magneten sorgen dann dafür das es trotzdem gut sitzt.

Step 3: Assembling the Table

Tabletop Instructions

For the tabletop, I used a birch plywood panel. I used a CNC router to cut a hole where the screen will be inserted later. The inner support beams are also made of birch plywood. All other wooden parts are made of oak, as they are visible from the outside.

For the legs, I used oak beams measuring 10 cm x 10 cm x 80 cm. I attached the other beams to these legs. For the outer cladding, I used wooden beams measuring 9 cm x 2 mm. The beams for the interior were halved, and I inserted a satin-finished acrylic beam in the middle to integrate the lighting.

For the top cover, I used the same beams. To attach the legs, I laser-cut and bent metal plates so that everything could be screwed together. I then attached the other beams to the frame with screws.

Winkel Tischbein

TV Halter

Step 4: Use the Table As a Normal Table

To use the table as a regular table, I bought oak laminated boards from the hardware store and cut them to the correct dimensions. For easy assembly and disassembly, I divided them into five boards. These can be reattached using the tongue and groove principle, with additional magnets ensuring a secure hold. When the boards are not needed, they can be stored in their holder.

Step 5: Adding Screen and Touch to the Table
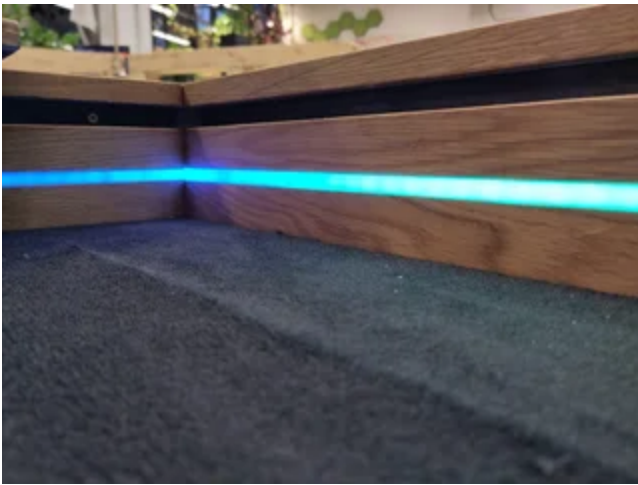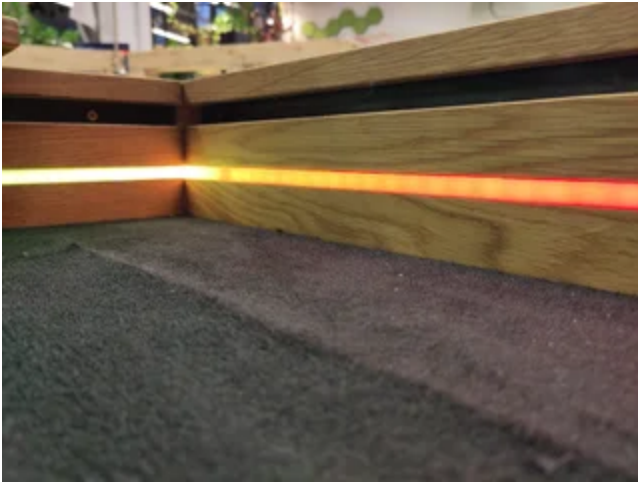
Den Bildschirm habe ich von unten am tisch angebracht dazu habe ich 2 Matall Balken gebogen welche genau an der stelel für die wand halter lang laufen um daran den Bildschirm mit der Tischplatte zu verschrauben. Der rahmen passt genau in das ausgefräste loch und hält durch press fit seine postituin.

Für die Beleuchtung habe ich den LED streifen auf die passende Länge gekürzt (in meinem Fall sind es 300 LEDs) und dann mit der Klebenden seite des LED streifens an der innen seite befestigt. Die kable sind habe ich änter den tisch verlegt zu einenm D1 Mini. Dann habe ich 2 holzbalken und einen 10 cm dicken milchigen akrybalken miteinander verklebt. dieser wird dann von unten am tisch verschraubt.

Step 6: Setup Computer for Foundary

The TV is connected via HDMI, and the touch frame is connected via USB to the laptop, which has Foundry installed. In Foundry, I created a world and installed the following libraries.

https://github.com/Oromis/touch-vtt

Step 7: Kommunikation

How Communication Works

I set up a network using ESP-NOW. See the tutorial here.

I created a master-slave network where the master can communicate with all slaves, and all slaves can communicate with the master. See the diagram. The master also hosts the website, which can be transferred to the ESP using LittleFS.

The master (brain) receives data from the website and sends the information to the corresponding slaves.

The LED Strip Table:

1. Registers with the master as soon as it starts.
2. Waits for the color and mode to be displayed.

The Player Order:

1. Registers with the master as soon as it starts.
2. Waits for the number of players and can then display whose turn it is.
3. Can receive messages to manipulate the count (add or subtract) or end the initiative.

The Player Panel:

1. Registers with the master as soon as a player logs in with their RFID chip.
2. Waits for a message from the master, then blinks the LED and displays the message on the OLED.

For the master, I use an ESP32 powered via USB. The directory structure for the master is organized as follows.

1. Brain
2. Brain.ino
3. data
4. index.html
5. css
6. chat.css
7. color.css
8. general.css
9. initativ.css
10. ruels.css
11. script
12. script.js
13. src
14. symbol.jpg

Step 8: Webseite

Website Interface

The website is the interface for the game master. Through it, they can communicate with the players, determine the player order, and control the table lighting.

Communication with Players:

1. The game master can type a message into the text field (maximum 168 characters).
2. They must then select which players should receive the message.
3. The game master can choose to send the message to all players or only to specific ones.
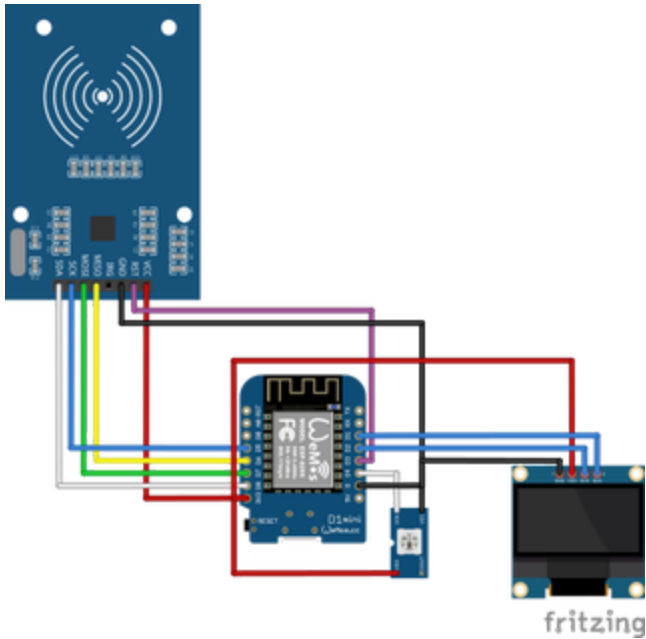
Initiative:

1. The game master can set the number of initiative
2. Then he can add or sub payerso or end the initiative.

Lighting:

1. The game master can create the ambiance for the current scene.
2. They can choose from pre-set scenarios like forest, water, battle, and tavern, or select a color and lighting behavior to be sent to the corresponding ESP.

Step 9: Build Player Panel

Building the Player Panels

To build the player panels, you need the following components. For the 3D holder, you can choose between A or B, depending on whether it will be mounted inside or outside the table.
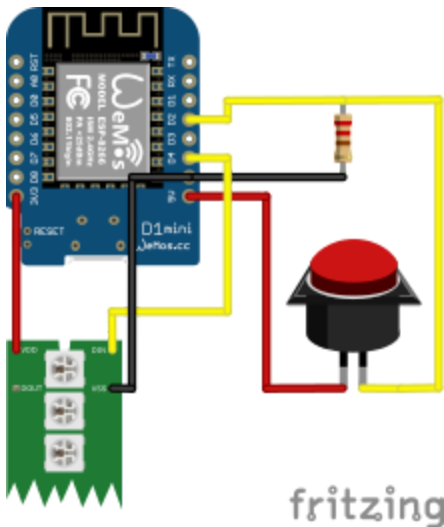
Components:

1. ESP8266
2. RFID reader with SPI interface
3. OLED
4. WS2812B LED
5. Cables
6. 3D holder (Player A or B)

The electronics are connected according to the circuit diagram. For power supply, I use a USB cable that can be connected to the table. I built five for my table, but you can build as many as you have players, up to a maximum of 120.

[Halter](#)

Step 10: Build Initative Anzeige


Player Order Display

For the player order, I equipped a wooden holder with a WS2812B LED strip. After the first test round, we added a button.

Components:

1. ESP8266
2. WS2812B LED strip (26 LEDs)
3. Wooden holder for acrylic plates
4. Acrylic plates for players
5. 3D holder for D1 mini player order
6. Button

The electronics are connected according to the circuit diagram. For power supply, I use a USB cable that can be connected to the table. My initiative display consists of 34 LEDs. Two LEDs are needed to illuminate each acrylic plate, so the display can show a maximum of 17 characters. I used frosted white acrylic plates for the players and red ones for the enemies.

Step 11: Build Electonic LED Tisch
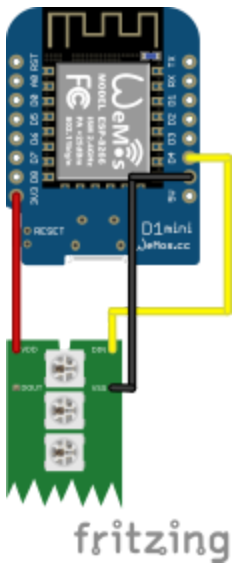
Im Tisch innen habe ich rundrum einen LED Streifen hinter milchigem Acryl verbaut um den Tisch zu beleuchten. Der LED Streifen wird über einen ESP 2866 gesteuert

Bauteile:

1. ESP 2866
2. ws2812b LED streifen (300 LEDs)
3. 3D *Halter D1 mini*

Die Elektronik wird entsprechend des Schaltplans verbunden.

Für die Stromversorgung nutze ich ein USB kable welches am Tisch angeschlossen werden kann. Meine Initative Besteht aus 600 LEDs.

[case d1mini](#)

Step 12: Add Extstra Stuff

To enhance the gaming experience and usability, I built a few extras: holders for drinks and a stand for the tabletop panels.