The PokerGFX RFID Video Poker Table

Build Guide

V2.2

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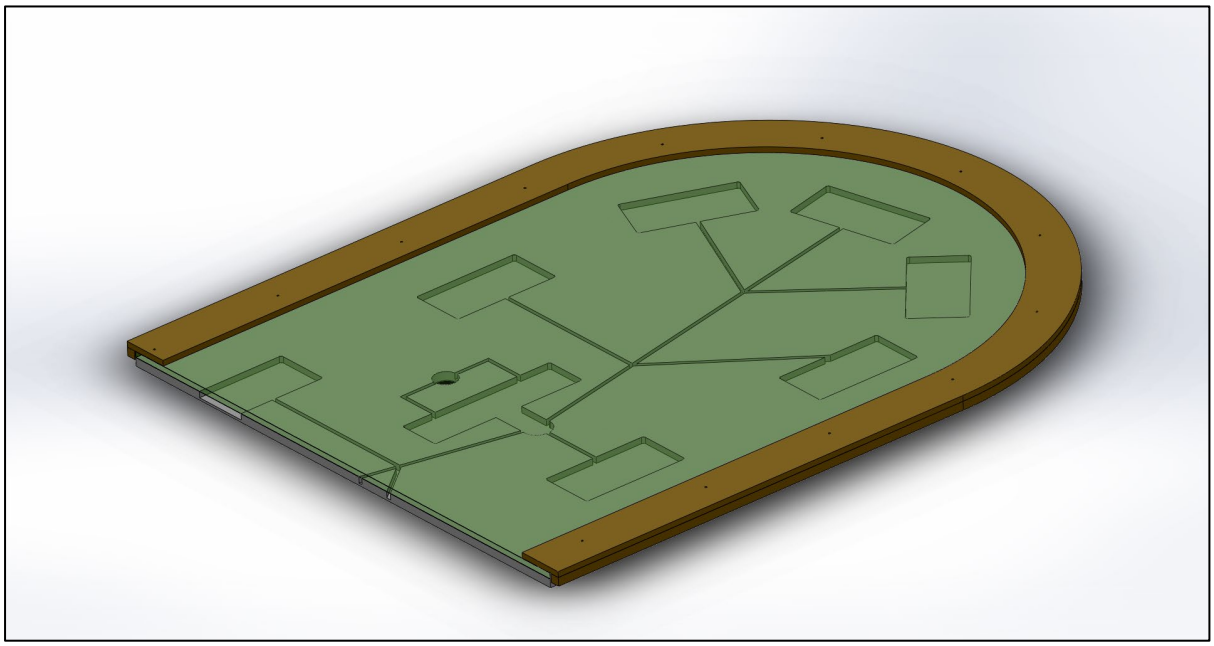
Introduction

The RFID Video Poker Table is a standard poker table that has been modified to accommodate hidden RFID reading hardware. A Reader connects to a Windows computer running the PokerGFX software via a USB cable or WiFi. The system tracks the movement of RFID-enabled playing cards and converts this information to a graphical display which is superimposed on video of the game in real time.

This guide is divided into 3 sections. The Design Guide section assumes you're familiar with building a standard poker table and lists the rules that must be followed when designing your table layout to accommodate the RFID electronics. The Electronics Integration section describes how the RFID equipment should be installed.

The final section is for those unfamiliar with poker table construction. It details how to build a basic RFID table, step by step.

CAD cutting files for some standard table configurations are available for download from http://videopokertable.net/Download.aspx



3D cross section showing cutouts in the table base to accommodate the RFID electronics. Double size player and muck antennas illustrated.

Design Guide

The PokerGFX RFID system supports many table configurations:

- Any table shape;
- Connection via USB cable or WiFi;
- 2 – 10 player positions;
- Optional dedicated dealer position;
- 1 or 2 muck piles at any location;
- Optional secondary card reading area per player for cards dealt face up in STUD games;
- Standard or double sized card reading areas.

You are encouraged to modify the standard CAD cutting layouts to suit your requirements. There are a few guidelines that must be followed when making changes:

- The Community Card antenna is integrated with the Reader, therefore the Reader should always be positioned in the centre of the table (dimensions: 345mm x 90mm).

- Each player position requires a hole card antenna.

- An optional second antenna can be installed for each player for reading cards dealt face up in STUD games.

- A muck antenna, normally located at the dealer position, must be installed to automatically detect player folds.

- The standard Player / Muck antenna size is 115mm x 115mm, however 2 antennas can be placed side by side with edges touching to create a double size combined reading area of 230mm x 115mm. Double size antennas are recommended for games that use more than 2 hole cards such as Omaha and 5 Card Draw variants.

- An antenna or Reader cannot be located within 60mm above, below or to the side of any other antenna or other metallic object (including power cables for LED lighting or USB charging systems etc). The only exception to this rule is where 2 antennas must touch edges to create a double size reading area as described above.

- The Reader can support a maximum of 22 antennas, with double size antennas counting as 2. (Example: 10 double size player hole card antennas (10 X 2) plus one double size muck antenna = 22).

- Reader and antenna cutouts and cable channels should be routed to a minimum depth of 14mm, and sized 1mm larger than the component to ensure a comfortable fit.

- The maximum vertical distance between the antenna and playing surface is 50mm;

- Antenna cables are 1.5m long, so make sure your cable channels are all shorter than this length;

- Excess antenna cable should be coiled loosely on top of the antenna. **Do not coil multiple cables together in one central area**;

- Antenna cables should not be folded or bent past their natural bending radius.

- The USB and power connectors on the Reader are easily damaged if excessive force is applied. **The design should incorporate pull protection for the USB and power cables**, for example a right angle bend in the cable path.

➢ ***EL (electroluminescent) lighting products interfere with the RFID system and cannot be used anywhere on the table. Standard LED lighting is OK.***

Electronics Integration

- Position the RFID reader in the centre cutout.

- Position the player and muck antennas in the provided cutouts.

➢ ***Always take care when handling electronic circuit boards. Handle by the sides only and wear a wrist strap to prevent electrostatic discharge damage.***

- Connect the antenna cables to the RFID Reader first. Thread the cable through the cable channel and connect the other end of each cable to an antenna, coiling up any excess cable on top of the antenna. Don't coil cables from multiple antennas together.

➢ ***It doesn't matter which connectors are used on the Reader. The system will learn where each antenna is connected during the Table Calibration procedure.***

➢ ***The antenna connectors are small and a little fiddly to connect. Never force the plug into a socket; it will click in easily when oriented correctly.***

➢ ***The antenna connectors are not designed for repeated connection and disconnection.***

- Connect the power and USB cables and feed them through the cut-through hole.

- Use insulation tape over the cable channels to hold the cables in place.

NOTE

➢ ***Right angle bends protect the USB and power connectors in case a cable is pulled too hard.***

➢ ***Excess antenna cables coiled loosely on top of the antennas.***

Building a basic table

This part of the guide is a step by step set of instructions to build a basic 10 seat Hold'Em RFID table.

List of materials

Qty	Description
1 Set	Folding Steel Legs
1	base-V2, 18mm MDF
1	racetrack, 12mm MDF
1	cutout, 12mm MDF
1	rail-top, 12mm MDF
1	rail-bot, 18mm MDF
1	5mm closed cell foam, 2m x 0.8m
1	12mm open cell 29kg foam, 2.5m x 1.3m
1	Suited speedcloth playing surface with custom cloth design, 2m x 0.8m
1	Black Whisper Vinyl, 2.8m x 1.4m
5	8G x 30mm countersunk wood screws
20	8G x 40mm metal screws
8	6G x 20mm metal screws

List of RFID equipment

Qty	Description
1	RFID Reader V2 (includes PokerGFX Windows software)
12	RFID Player Antennas
1	Mini USB cable, 5m

The CAD files for the table parts in red can be used by any CNC cutting workshop to produce the parts. The cloth file is the playing surface artwork in Adobe Illustrator format. These files, along with the RFID reader, antennas and playing cards are all available from http://videopokertable.net/

Tools Required

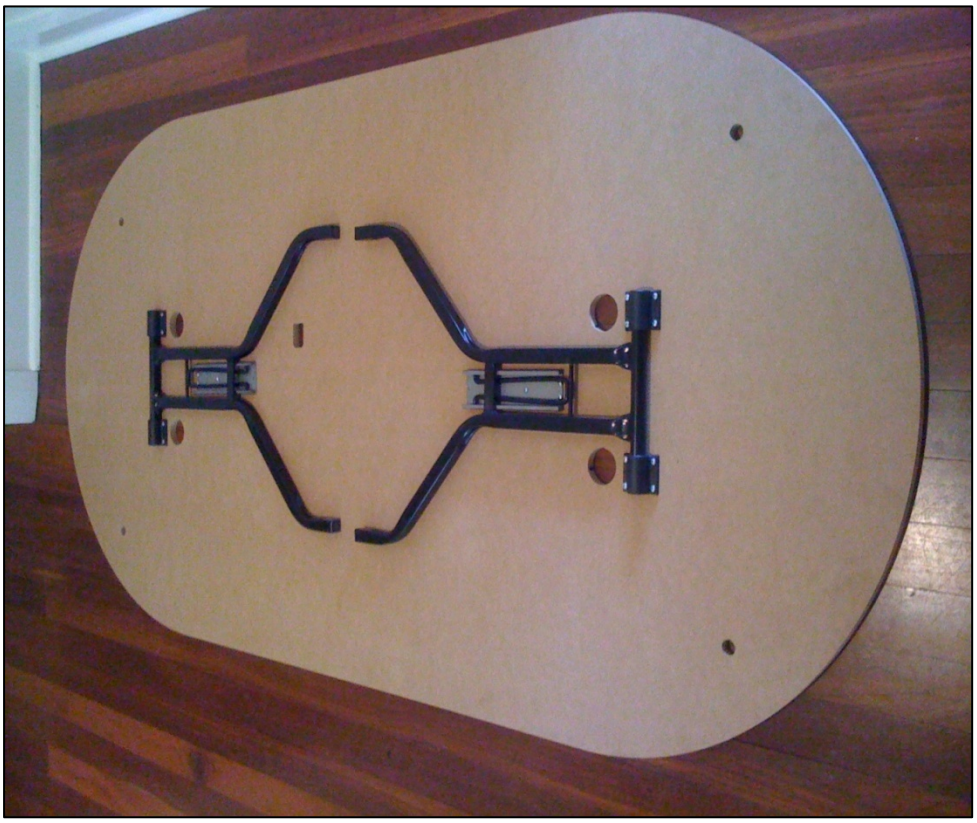
- Philips Head Screwdrivers (medium & small)
- Staple Gun (with heavy duty 8mm staples)
- Clamps
- Trimming Knife
- Scissors
- Foam Cutter (or Electric Carving knife)

Other Materials

- Sandpaper (60 grit & 220 grit)
- Wood stain
- Clear gloss wood varnish
- Wood glue
- 3M foam adhesive spray

Base & legs

- Attach the legs to the base using the supplied mounting hardware.



The other side of the base has the cutouts that will accommodate the RFID electronics.

Playing surface

- Spray the surface of the centre part with a light covering of 3M foam adhesive.

- Place the closed cell foam on top of the sprayed surface, and smooth out with a light pressure to ensure good adhesion.

- Use a foam cutter to trim the foam to the same shape as the playing surface. Proper foam cutters are expensive, however a cheap electric carving knife does an excellent job.

- Position the playing surface cloth on top of the foam, being careful to ensure that it is positioned correctly.

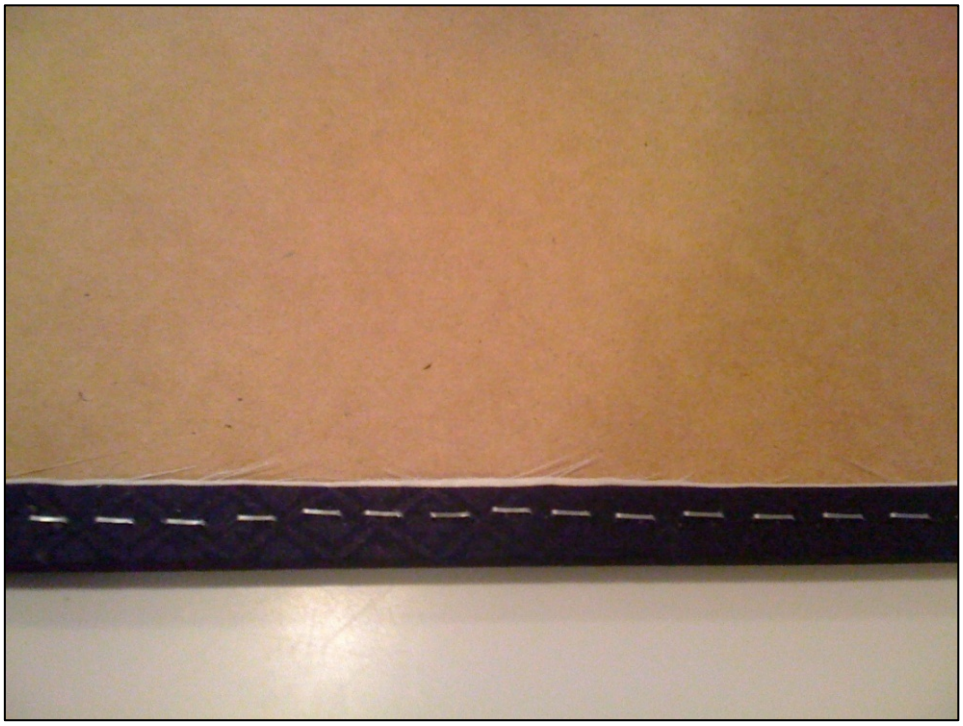
- Fold the material back over itself so that half of the foam is exposed.

- Spray a light coating of 3M foam adhesive to the surface of the exposed foam.

- Working from the centre, roll the cloth back over the exposed foam, being sure to smooth out any air bubbles as you go.

- Fold the other half of the cloth back to expose the unglued foam surface, and repeat the process.

- Turn the whole centre assembly upside down, and staple the cloth to the wood around the entire perimeter.



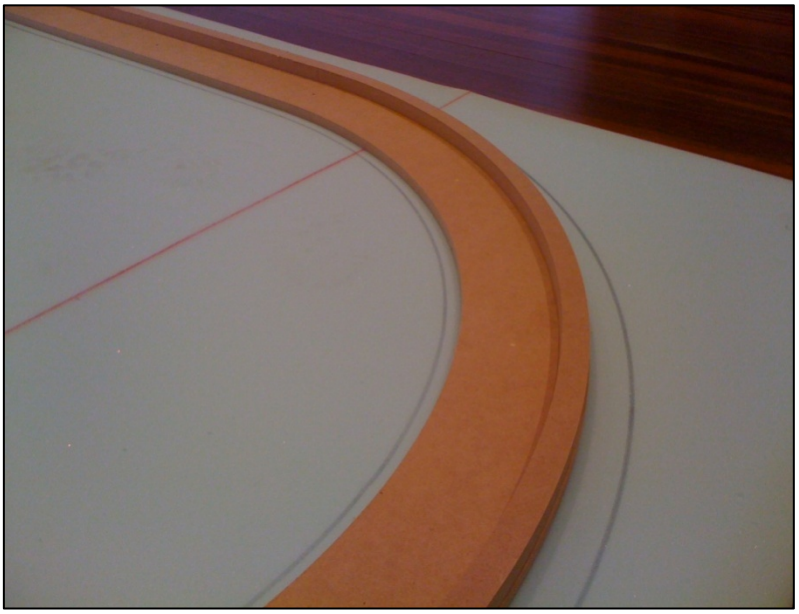
Padded rail

- Glue the two rail parts together to form a single rail part that has a lip around the outer rim.

- Place the glued part on top of the open cell foam sheet.

- Use the 3M adhesive foam to glue the foam sheet and the wood rail together to ensure that the foam does not move while cutting.

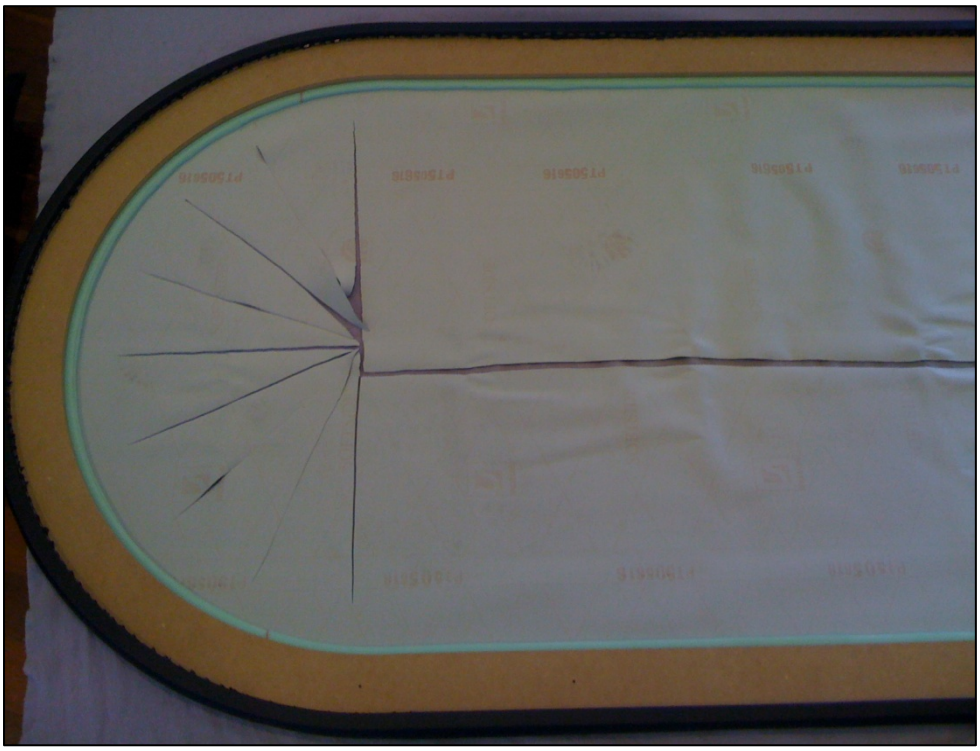
- Mark out two lines on the foam – on the outside, 30mm from the wood, and on the inside, 10mm from the wood.



- Use the foam cutter to cut along these lines and remove the excess foam.

- Roll out the vinyl, black side down.
- Place the rail assembly, foam side down, on top of the vinyl sheet.
- Stretch the vinyl over the outer edge of the rail, and staple on the inside of the lip. Do this around the entire perimeter of the rail.

- Use scissors to cut the centre of the vinyl as shown here:



- Stretch and staple the vinyl to the underside of the rail as shown below.

The finished rail

Racetrack

- Sand one side of the racetrack, using 60 grit sandpaper and then 220 grit for a fine finish.
- Stain the sanded side of the racetrack with your chosen wood stain.

- Varnish the stained racetrack to the desired finish.

Final assembly

- Install the RFID equipment in the base;
- Position the racetrack on top of the base;
- Position the rail on top of the racetrack;
- Secure the assembly from underneath with 20 x 40mm screws around the perimeter;
- Drop the centre playing surface into the middle, and secure with 5 x 30mm screws from underneath.

The Finished Table (standard size player antennas)

FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception,

which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC’s RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.

IC Caution

English:

This device complies with Innovation, Science and Economic Development Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

(1)This device may not cause interference, and

(2)This device must accept any interference, including interference that may cause undesired operation of the device.

To maintain compliance with RSS-102 RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.

French:

Cet appareil est conforme aux normes RSS exemptées de licence d’innovation, sciences et développement économique Canada.

L'exploitationestautorisée aux deux conditions suivantes:

(1)l'appareil ne doit pas produire de brouillage, et

(2)l' utilisateur de l'appareildoit accepter tout brouillageradioélectriquesubi, mêmesi le brouillageest susceptible d'encompromettre le fonctionnement.

Pour être conforme aux lignes directrices d’exposition RF RSS-102, cet équipement doit être installé et exploité à une distance minimale de 20cm entre le radiateur et votre corps: n’utilisez que l’antenne fournie.