DC31 Challenge

DC31 HHV Challenge

HHV Technologies, the inovation side of the Hardware Hacking Village, is back with a new SOC design specifically for driving electronic conference badges, called the HHVDC31. The HHVDC31 introduces a game-changing new protocol, Badgiimo support. Badgiimos are add-ons for electronic conference badges that can modify and manipulate the features of the badge simply by attaching the Badgiimo to the SAO port of the badge.

We have a few pre-production demo units to show off, along with a few sample Badgiimos! The Call Badgiimo can be used to turn your badge into a pseudo phone, the Game Badgiimo unlocks a few games to play on the badge, and the Party Badgiimo transforms the badge into the party starter by unlocking some great blinky LED modes!

Unfortunately, the demo badges were damaged in shipping and the bottoms were ripped off. Thankfully, we were able to fabricate PCB that can be attached to the bottom of the demo badges to get back the functionality of the bottom row of buttons and LEDs.

If you want to learn more about the HHVDC31, check out the datasheet for the HHVDC31.

Schedule

Aug 11: 1000 to 1800 PT

Aug 12: 1000 to 1800 PT

Aug 13 @ 1200 PT: Awards given out at the presentation stage in the HHV/SSV

Rules

>> Do NOT apply more than 3.3V to any part of the CTF demo badge or any Badgiimos
>> The RPi Pico that is acting as the HHVDC31 is off limits, no dumping the firmware
>> Replacement parts are available for the Badge Fix challenge, but it'll cost 25 points per part
>> If you use a part(s) from the HHV parts pile in place of a kitted part, show an HHV CTF organizer for a bonus 25 point per part replaced

CTF Registration and Submission

ctf.dchhv.org

Challenges

Badgiimo Challenges

Call Badgiimo

Rumor has it the Call Badgiimo reacts to a few sets of number sequence inputs. Maybe you can help us document these. Sadly, we need to fix the demo badge before we can enter anything since the # (pound sign) is required to send.

Game Badgiimo

The Game Badgiimo introduces some sweet badge games. Think you can beat

any of our top scores?

Party Badgiimo

Oooo blinky lights!

? Badgiimo

I wonder if there are plans to make any other Badgiimos…

Hidden Badge Flags

I've heard through some back channels that the engineering team enjoys easter eggs. Do you think they'd really be so arrogant as to leave a few easter eggs in such a ground-breaking technological product? If you find anything like this in the HHVDC31, please let us know!

Awards

Awards for this competition are still being sorted out, but at the very least, the winner (most points or first to complete all challenges) will be awarded one of the HHVDC31 pre-production prototypes and a set of Badgiimos.

Badge Fix

Badge Fix Assembly

If you'd like to unlock the full functionality of the demo unit, you'll have to build up the bottom row of LEDs and buttons.

In your Demo fix bag, you should have he following

- >> 3x LEDs
- >> 1x 1k Ohm resistors
- >> 3x tactile buttons
- >> 2x 4-pin headers
- >> 1x PCB

You may assemble these parts in any order you'd like, but if you're new to solder, we'd recommend you start with the through hold components

(the parts that have leads that attach through plated holes in the PCB) first, like the tactile switches and the 1k ohm resistor. For the switches (marked S10, S11, S12 on the PCB), there are two ways they'll fit into the set of four holes, and either way is fine. Once you push the switch in, solder the leads to the PCB on the back side of the PCB.

Soldering the resistor is similar, find the R1 part and bend the resistor leads to fit in the two holes to the north and south of the marked resistor square. It does not matter which lead goes in which hole, just make sure one lead goes into each of the two holes.

On to the surface mount components. Let's start with the 4-pin headers since they'll allow us to test that we've done everything correctly so far. On the north side of the PCB, there are two groups of four through holes. Solder the shorter pins into the through holes so that the longer pins are running parrallel to the PCB.

To test if everything is working so far, plug the fix board into the bottom of the badge and then plug in the Call Badgiimo. press the buttons and you should hear the Call Badgiimo make a few different sounds.

Lastly, let's assemble the LEDs. These are the most difficult parts to assembly because not only are they surface mount, they are directional, so they will only work in one orientation. Don't sweat though, you got this! The LEDs have a mark on one side. Make sure the mark matches up with the marker on the PCB. For soldering them down, apply a little bit of solder to one of the two pads then use tweazers to place the LED onto the pads while heating the solder on the pad. Once one side of the LED is soldered down, solder the other side. Repeat for the other two LEDs.

To test if the LEDs are working, plug the fix board into the demo badge and each LED should come on when its paired button is pressed.