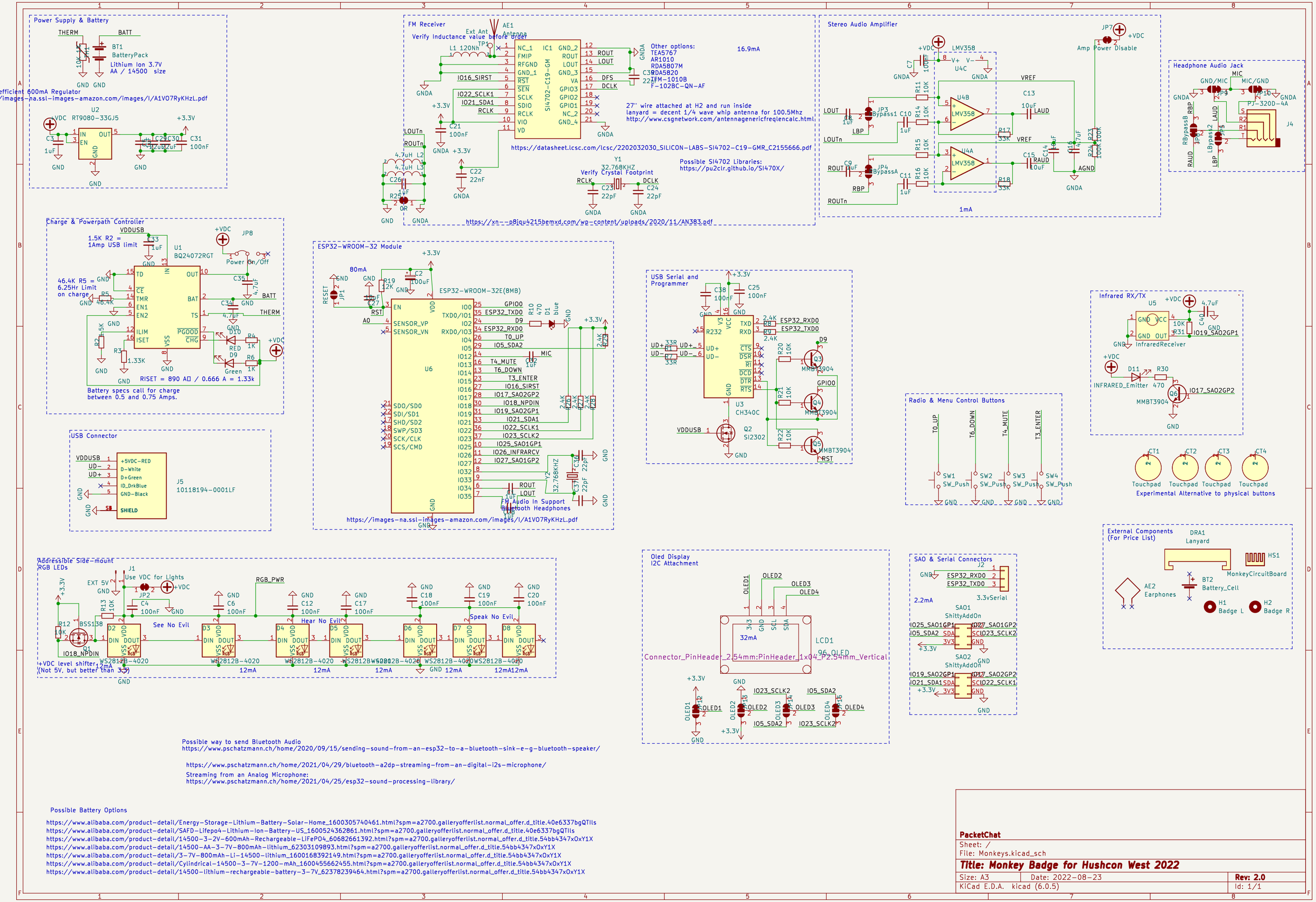
Power Supply & Battery
THERM
BATT
BT1
BatteryPack
Lithium Ion 3.7V
AA / 14500 size
per-efficient 600mA Regulator
ps://images-na.ssl-images-amazon.com/images/I/A1VO7RyKHzL.pdf
U2
RT9080-33GJ5
+VDC
+3.3V
FM Receiver
Ext Ant
AE1
Antenna
Verify Inductance value before order
L1 120Nh
TP1
IC1
SI4702-C19-GM
NC_1
FMIP
RFGND
GND_1
RST
SEN
SCLK
SDIO
RCLK
VIO
VD
GND_2
ROUT
LOUT
GND_3
VA
GPIO3
GPIO2
GPIO1
NC_2
GND_4
IO16_SIRST
IO22_SCLK1
IO21_SDA1
RCLK
DFS
DCLK
Other options:
TEA5767
AR1010
RDA5807M
RDA5820
TFM-1010B
F-102BC-QN-AF
16.9mA
27" wire attached at H2 and run inside
lanyard = decent 1/4 wave whip antenna for 100.5Mhz
http://www.csgnetwork.com/antennagenericfreqlencalc.html
https://datasheet.lcsc.com/lcsc/2202032030_SILICON-LABS-SI4702-C19-GMR_C2155666.pdf
Y1
32.768KHZ
Verify Crystal Footprint
Possible SI4702 Libraries:
https://pu2clr.github.io/SI470X/
https://xn--p8jqu4215bemxd.com/wp-content/uploads/2020/11/AN383.pdf
Stereo Audio Amplifier
LMV358
U4C
U4B
U4A
VREF
LOUT
LOUTn
ROUTn
LBP
RBP
LAUD
RAUD
AGND
JP7
Amp Power Disable
1mA
Headphone Audio Jack
GND/MIC
MIC/GND
MIC
PJ-320D-4A
J4
Charge & Powerpath Controller
VDDUSB
U1
BQ24072RGT
JP8
Power On/Off
1.5K R2 =
1Amp USB limit
46.4K R5 =
6.25Hr Limit
on charge
RISET = 890 AΩ / 0.666 A = 1.33k
Battery specs call for charge
between 0.5 and 0.75 Amps.
ESP32-WROOM-32 Module
ESP32-WROOM-32E(8MB)
U6
80mA
RESET
JP1
A0
GPIO0
TXD0/IO1
D9
RXD0/IO3
T0_UP
IO5_SDA2
MIC
T4_MUTE
T6_DOWN
T3_ENTER
IO16_SIRST
IO17_SAO2GP2
IO18_NPDIN
IO19_SAO2GP1
IO21_SDA1
IO22_SCLK1
IO23_SCLK2
IO25_SAO1GP1
IO26_INFRARCV
IO27_SAO1GP2
ROUT
LOUT
FM Audio In Support
Bluetooth Headphones
https://images-na.ssl-images-amazon.com/images/I/A1VO7RyKHzL.pdf
USB Serial and
Programmer
R232
U3
CH340C
Q2
SI2302
VDDUSB
UD+
UD-
ESP32_RXD0
ESP32_TXD0
MMBT3904
RST
Infrared RX/TX
U5
InfraredReceiver
INFRARED_Emitter
IO19_SAO2GP1
IO17_SAO2GP2
Radio & Menu Control Buttons
SW1
SW2
SW3
SW4
SW_Push
Touchpad
Experimental Alternative to physical buttons
USB Connector
J5
10118194-0001LF
+5VDC-RED
D-White
D+Green
ID_DrkBlue
GND-Black
SHIELD
Addressible Side-mount
RGB LEDs
J1
Use VDC for Lights
EXT 5V
JP2
RGB_PWR
BSS138
IO18_NPDIN
+VDC level shifter
(Not 5V, but better than 3.3)
See No Evil
Hear No Evil
Speak No Evil
WS2812B-4020
12mA
Oled Display
I2C Attachment
OLED1
OLED2
OLED3
OLED4
LCD1
96_OLED
Connector_PinHeader_2.54mm:PinHeader_1x04_P2.54mm_Vertical
32mA
SAO & Serial Connectors
J2
ESP32_RXD0
ESP32_TXD0
3.3vSerial
2.2mA
SAO1
ShittyAddOn
SAO2
External Components
(For Price List)
DRA1
Lanyard
HS1
MonkeyCircuitBoard
AE2
Earphones
BT2
Battery_Cell
H1
Badge L
H2
Badge R
Possible way to send Bluetooth Audio
https://www.pschatzmann.ch/home/2020/09/15/sending-sound-from-an-esp32-to-a-bluetooth-sink-e-g-bluetooth-speaker/
https://www.pschatzmann.ch/home/2021/04/29/bluetooth-a2dp-streaming-from-an-digital-i2s-microphone/
Streaming from an Analog Microphone:
https://www.pschatzmann.ch/home/2021/04/25/esp32-sound-processing-library/
Possible Battery Options
https://www.alibaba.com/product-detail/Energy-Storage-Lithium-Battery-Solar-Home_1600305740461.html?spm=a2700.galleryofferlist.normal_offer.d_title.40e6337bgQTlls
https://www.alibaba.com/product-detail/SAFD-Lifepo4-Lithium-Ion-Battery-US_1600524362861.html?spm=a2700.galleryofferlist.normal_offer.d_title.40e6337bgQTlls
https://www.alibaba.com/product-detail/14500-3-2V-600mAh-Rechargeable-LiFePO4_60682661392.html?spm=a2700.galleryofferlist.normal_offer.d_title.54bb4347xOxY1X
https://www.alibaba.com/product-detail/14500-AA-3-7V-800mAh-lithium_62303109893.html?spm=a2700.galleryofferlist.normal_offer.d_title.54bb4347xOxY1X
https://www.alibaba.com/product-detail/3-7V-800mAh-Li-14500-lithium_1600168392149.html?spm=a2700.galleryofferlist.normal_offer.d_title.54bb4347xOxY1X
https://www.alibaba.com/product-detail/Cylindrical-14500-3-7V-1200-mAh_1600455662455.html?spm=a2700.galleryofferlist.normal_offer.d_title.54bb4347xOxY1X
https://www.alibaba.com/product-detail/14500-lithium-rechargeable-battery-3-7V_62378239464.html?spm=a2700.galleryofferlist.normal_offer.d_title.54bb4347xOxY1X
PacketChat
Sheet: /
File: Monkeys.kicad_sch
Title: Monkey Badge for Hushcon West 2022
Size: A3
Date: 2022-08-23
Rev: 2.0
KiCad E.D.A. kicad (6.0.5)
Id: 1/1