Input Power

Battery Input
J1 2477
PWR_FLAG

USB-C Port
J2 UJ20-C-H-G-TH-P16-TR
To Provide Alternative Power
PWR_FLAG

VBUS, DN1 A7, DP1 A6, DN2 B7, DP2 B6, CC1 A5, SBU1 A8, CC2 B5, SBU2 B8, GND, SHIELD

R8 5k1Ohms
R9 5k1Ohms

Power Saftey Diodes
D5 1N5819
D6 1N5819

Voltage Regulator Output 3.3V
IC2 LM2575-3.3WT
VIN, GND, ON/OFF, OUT, FB
C1 EEU-FC1C101H
L1 330uH
D1 1N5822
C7 EEU-FR1E331
3V3

Battery Monitor
R6 10kOhms
R7 6.8kOhms
C4 0.1uF
BAT_V

Control and Sensor System

Microcontroller
IC1 ESP32-C3-WROOM-02-N4
3V3, EN, IO4, IO5, IO6, IO7, IO8, IO9, GND_1, IO10, RXD, TXD, IO18, IO19
IO3, IO2, IO1, IO0, GND_2, GND_3, GND_4, GND_5, GND_6, GND_7, GND_8, GND_9, GND_10

WAKE_MCU, BAT_V, BUZZ, FRESET
SCL, SDA, 3V3

R1 4k7Ohms
R2 4k7Ohms

Alert System

Status LEDs
27 Ohms R3 — D2 R-LED
27 Ohms R4 — D3 Y-LED
27 Ohms R5 — D4 G-LED

Buzzer
BUZZ
LS1 PKM22EPPH4001-B0

Accelerometer
U1 ADXL345BCCZ-RL7
GND, VS, SDO/ALT_ADDRESS, SDA/SDI/SDIO, SCL/SCLK, INT2, INT1, VDD_I/O
NC, RESERVED_11, RESERVED_3, CS
C3 10uF – tantalum
C6 0.1uF – ceramic
SDA, SCL
WAKE_INT
3V3
To detect knocks

Wake-on-Motion System

D Flip-Flop
IC3 MC74HC74ADTR2G
Q2, Q2, SET_2, CLOCK_2, DATA_2, RESET_2, VCC
GND, Q1, Q1, SET_1, CLOCK_1, DATA_1, RESET_1
WAKE_MCU, 3V3, WAKE_INT, FRESET
C5 0.1uF
This Interrupt triggers when there is some activity
R10 CFR-25JT-52-10K

PWR_FLAG
GND
Common GND