Safmet PCB issues and Possible Checks and its Solutions:

| Sr. No.	Faults	Possible Checks and Solutions
1.	Reset is not happening	Check by removing 2N002DW IC. (might be shorting)
2.	Not booting/bootloader failed	Check for presence of crystal oscillator or cable connection of boot loader. Replace atmega if it's damaged . check spi pin continuity mosi(15th pin),miso(16th pin)at atmega ic to ATMEGA_PROG pins on pcb
3.	Constant resetting is happening(for 4 sec periodic alarm)	Check if R16 is fabricated, if yes, take it out and short it out.
4.	Continuous resetting(within 1 sec)(Code issues)	Reupload the code and check. Still not solved, try the blink code with wdt reset and if it works, then try to adjust the code with wdt functions.
5.	Power is being recognised, but VCC not getting 3.3v	C13 might be shorting VCC and GND.
6.	Immediate reset is not happening after taking off power.	Try removing TPS and check.(enable pin of TPS might be floating).
7.	Issues with charging IC	check for shorting, reverse placement or output of the charging IC should be 3.5<O/P<4.2, if more voltage is coming, try changing it. (correct working gives RED and BLUE LEDs).check the voltage at input and output pin of it.
8.	If reset of ATMEGA not happening	Check if reset button is working or not and also check 2N7002DW(If shorting)
9.	If serial prints not getting	Check the shorting between the tx and rx pins of atmega ic to uart usb pins. solder atmega rx and tx pins properly
10.	Decawave not working	Check data coming on IRQ pin(22th

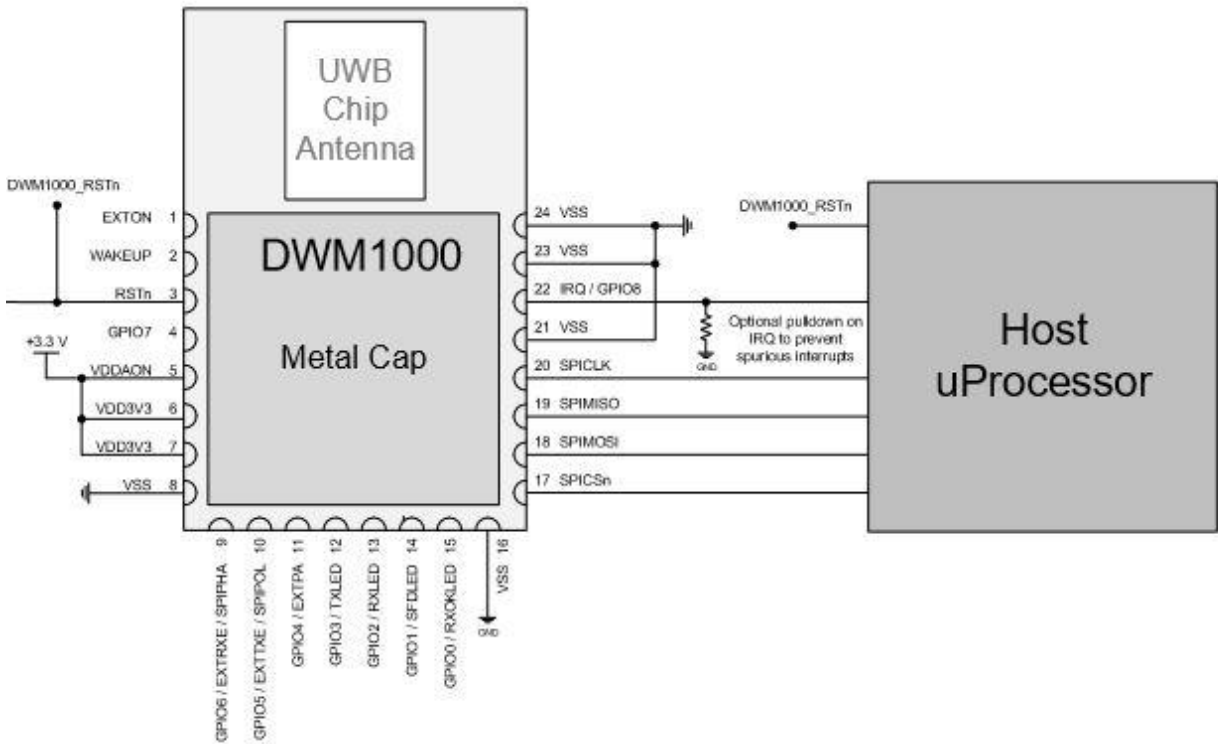|		pin) of decawave and check data coming on mosi(18th pin),miso (19th pin)pins of decawave.
11.	Battery not getting charge	Check battery positive and negative orientation. check the charging connector properly soldered or not
12.	Charging ic 24092 safmet_v3 discharging issue	At atmega we are getting 2.8v at vcc pin soo max809s was resetting atmega because at 2.8 is threshold voltage for that ic.So removed max809s for that.
13.	Pcb was vibrating while plugging to charger	Made vibration motor low in void setup in code
14.	Atmega resetting continuously	Remove both 2n7002dw and max809s.Because max809s voltage supervisor which resetting the atmega through 2n7002dw n channel mosfet.
15.	Showing low battery at 3.5v	Comment tone buzzer and no tone buzzer in code,BAT_LOW_ALERT set at 0.846
16.	Voltage not getting at output of charging ic	Check r9 resistor value is 560 ohm or not replace charging ic with working one r40 and r41 should properly soldered
17.	Safmet resetting at above 3.4v,after pressed reset also still same on reset state	The decawave might be stuck and the decawave will not reset till the battery is fully discharged. Short decawave vcc and ground pin then its working fine. soldered tps on pcb bypass r16
18.	Power supply issues	Check the voltage at LDO input and output it should be 3.2. Check voltage at atmega vcc pin(4th pin) it should be 3.2v. Check voltage at decawave vcc pin(6th pin) it should be 3.2v
19.	RGB led not getting on	Check the rgb led orientation. Check charging ic working properly by checking its input and output voltages.
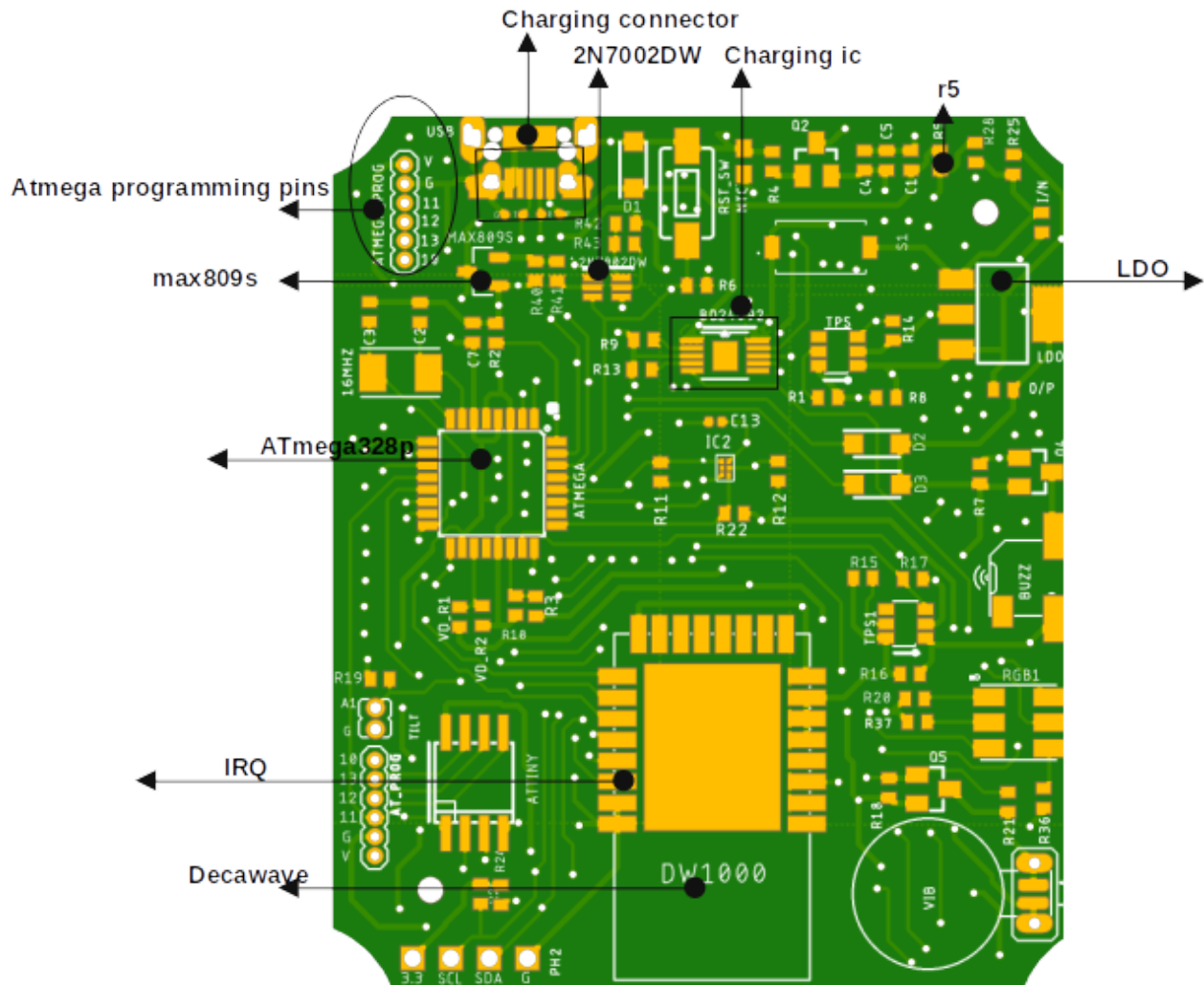
fig 1:Pin descriptions for CasNode PCB

Note:For detailed description of pinouts of atmega ic ,decawave and charging ic please refer below pinout diagrams.

Atmega328p IC Pinout Diagram:

ATMEGA328P-TQFP32 PINOUT
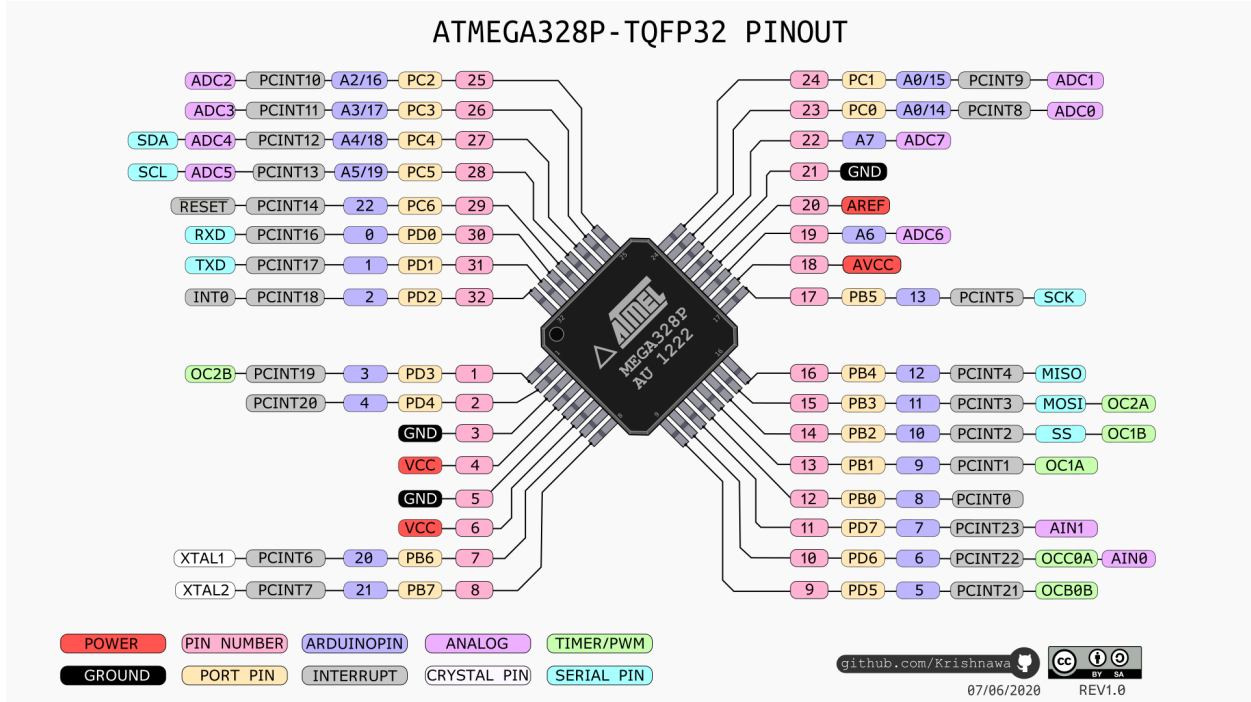
Decawave dw1000 Pinout Diagram:

Charging IC Pinout Diagram: