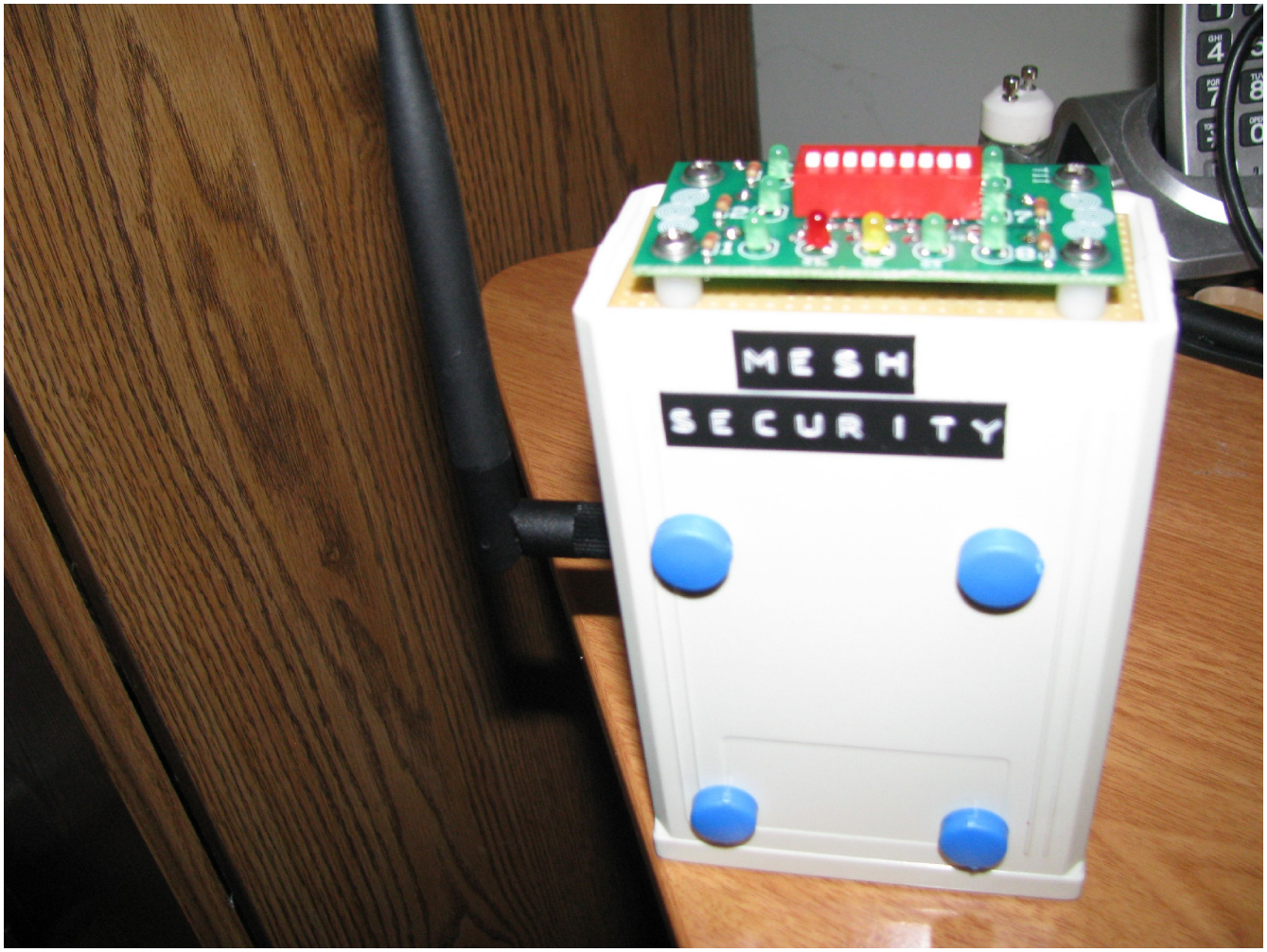
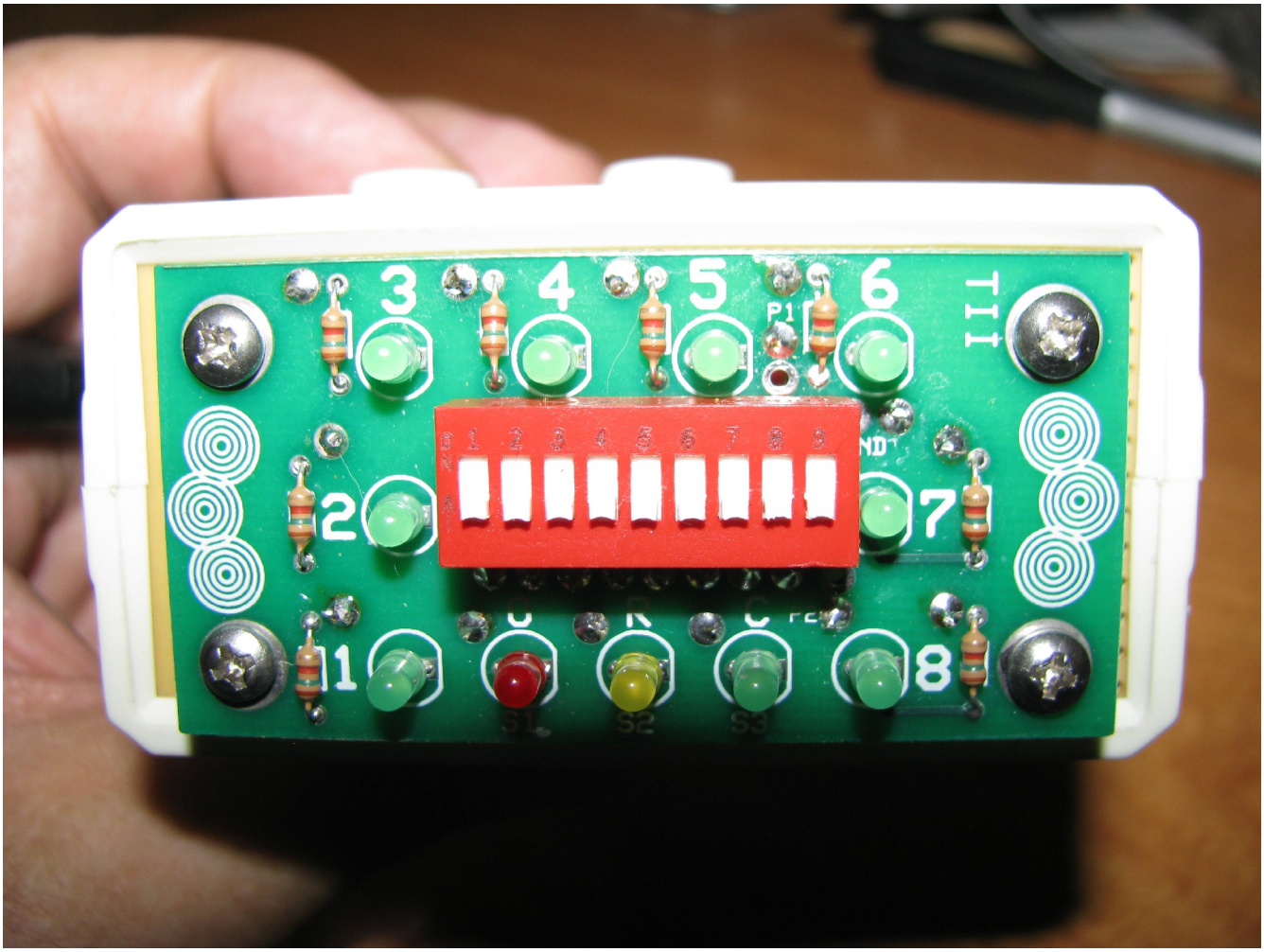
First pic shows the special high gain antenna used with the Synapse RF200PD1 transceiver in the Hand Held RF controller.

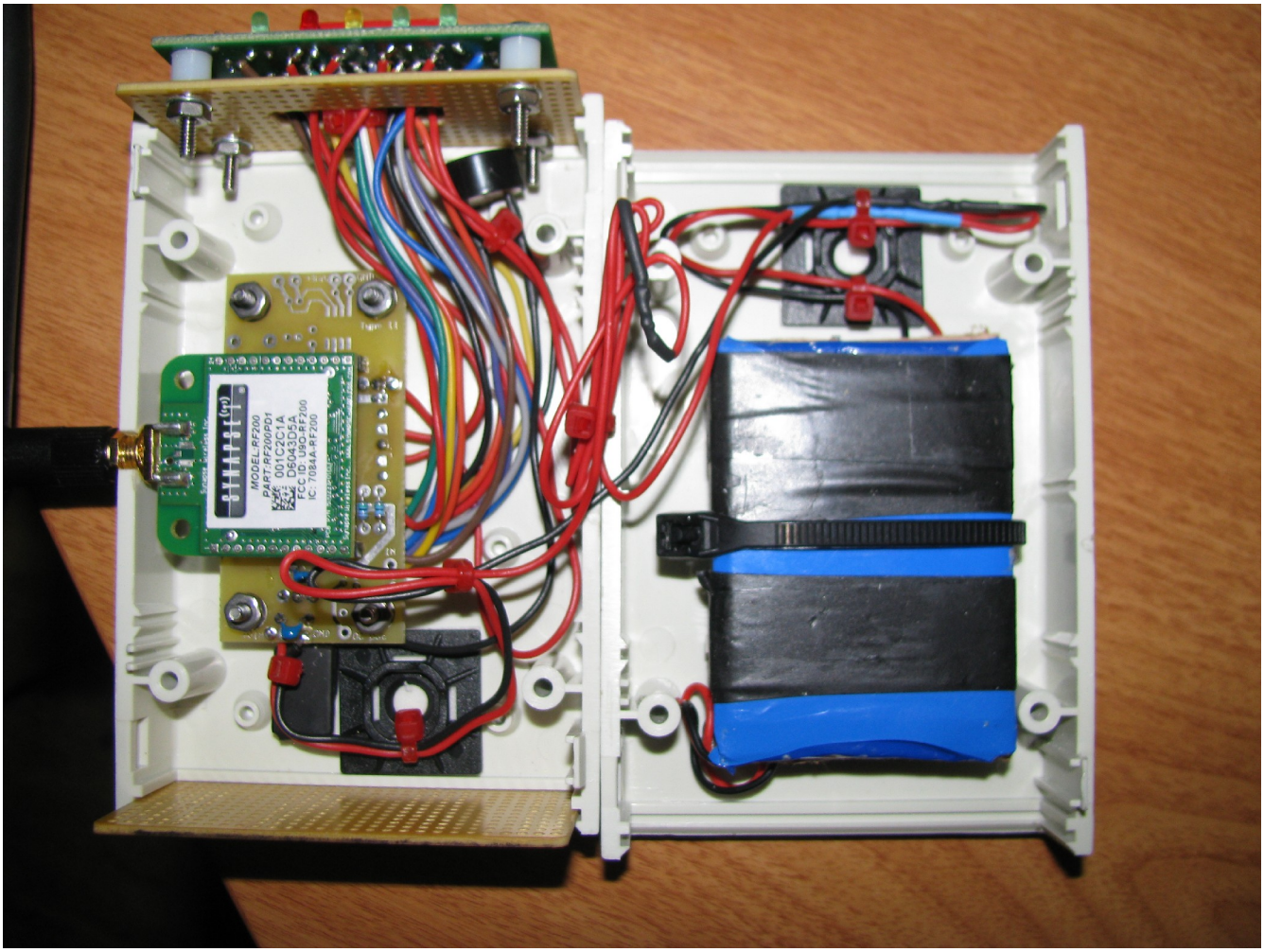
Second pic shows the user interface which provides 100% visual feedback via LEDs when any DIP switch is activated. There are 11 lower power status LEDs and 1 Piezo buzzer which will give about 4 days of standby receive capability using a 2 amp Lipo battery.

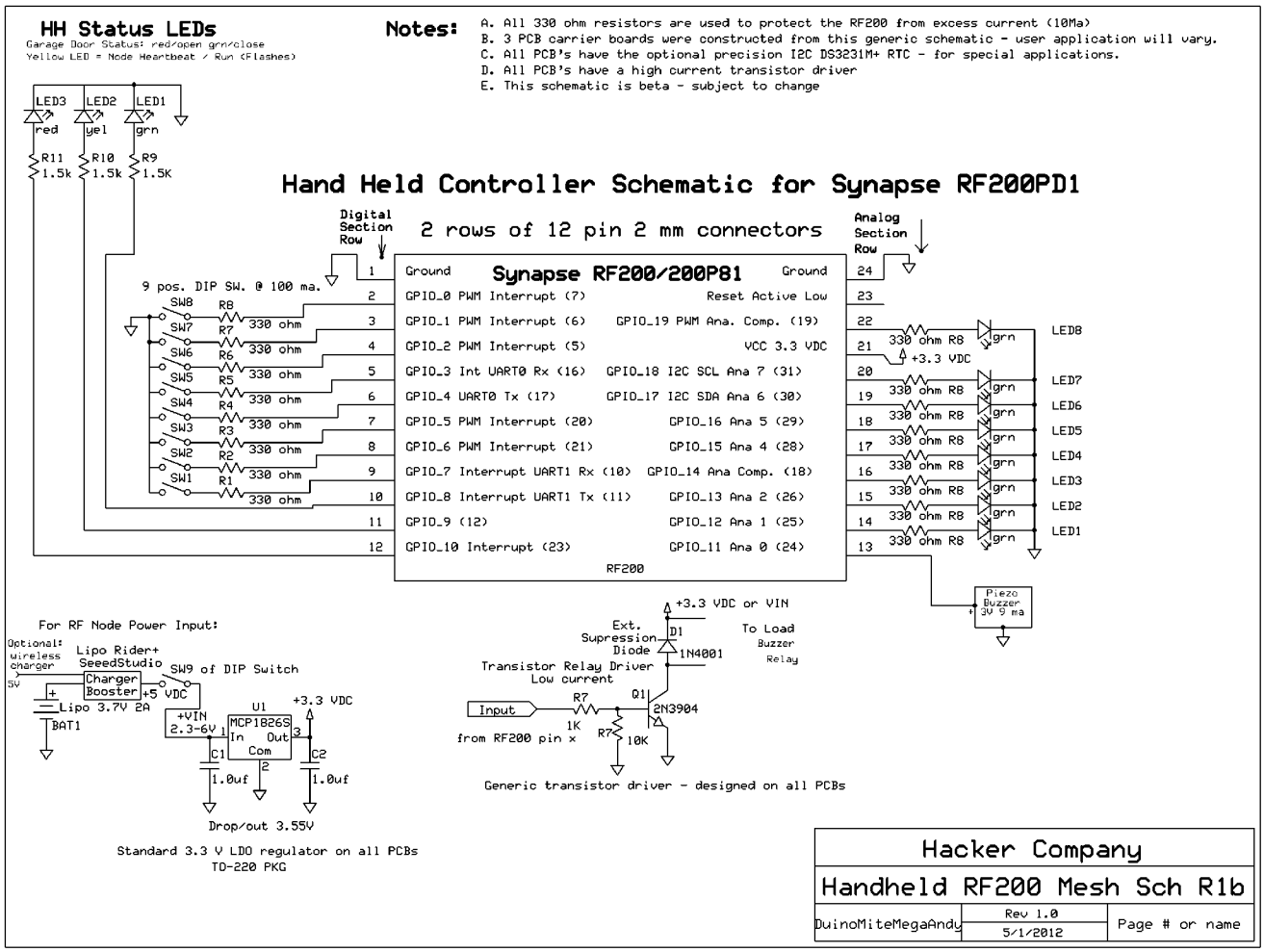
Third pic shows the internal wiring which includes the Synapse RF transceiver and USB Lipo charging board (below the 2 amp Lipo blue battery on the right)

The last pic is the schematic for this version of the Hand Held RF Mesh Controller.
All GPIO were used up in this RF mesh controller.




3
4
5
6
P1
2
7
1
8
S1
S2
S3


MODEL:RF200
PART:RF200P01
FCC ID: U9O-RF200
IC: 7084A-RF200


HH Status LEDs
Garage Door Status: red/open grn/close
Yellow LED = Node Heartbeat / Run (Flashes)
LED3 red
LED2 yel
LED1 grn
R11 1.5k
R10 1.5k
R9 1.5K
Notes:
A. All 330 ohm resistors are used to protect the RF200 from excess current (10Ma)
B. 3 PCB carrier boards were constructed from this generic schematic - user application will vary.
C. All PCB's have the optional precision I2C DS3231M+ RTC - for special applications.
D. All PCB's have a high current transistor driver
E. This schematic is beta - subject to change
Hand Held Controller Schematic for Synapse RF200PD1
Digital Section Row
2 rows of 12 pin 2 mm connectors
Analog Section Row
9 pos. DIP SW. @ 100 ma.
SW8 R8 330 ohm
SW7 R7 330 ohm
SW6 R6 330 ohm
SW5 R5 330 ohm
SW4 R4 330 ohm
SW3 R3 330 ohm
SW2 R2 330 ohm
SW1 R1 330 ohm
Synapse RF200/200P81
1 Ground
2 GPIO_0 PWM Interrupt (7)
3 GPIO_1 PWM Interrupt (6)
4 GPIO_2 PWM Interrupt (5)
5 GPIO_3 Int UART0 Rx (16)
6 GPIO_4 UART0 Tx (17)
7 GPIO_5 PWM Interrupt (20)
8 GPIO_6 PWM Interrupt (21)
9 GPIO_7 Interrupt UART1 Rx (10)
10 GPIO_8 Interrupt UART1 Tx (11)
11 GPIO_9 (12)
12 GPIO_10 Interrupt (23)
RF200
Ground
Reset Active Low
GPIO_19 PWM Ana. Comp. (19)
VCC 3.3 VDC
GPIO_18 I2C SCL Ana 7 (31)
GPIO_17 I2C SDA Ana 6 (30)
GPIO_16 Ana 5 (29)
GPIO_15 Ana 4 (28)
GPIO_14 Ana Comp. (18)
GPIO_13 Ana 2 (26)
GPIO_12 Ana 1 (25)
GPIO_11 Ana 0 (24)
24
23
22
21
20
19
18
17
16
15
14
13
330 ohm R8
+3.3 VDC
grn
LED8
LED7
LED6
LED5
LED4
LED3
LED2
LED1
Piezo Buzzer 3V 9 ma
For RF Node Power Input:
Optional wireless charger
5V
Lipo Rider+ SeeedStudio
Charger Booster
+5 VDC
SW9 of DIP Switch
Lipo 3.7V 2A
BAT1
+VIN 2.3-6V
U1
MCP1826S
In Out Com
+3.3 VDC
C1 1.0uf
C2 1.0uf
Drop-out 3.55V
Standard 3.3 V LDO regulator on all PCBs
TO-220 PKG
+3.3 VDC or VIN
Ext. Supression Diode
D1
1N4001
To Load
Buzzer
Relay
Transistor Relay Driver
Low current
Input
from RF200 pin x
R7 1K
R7 10K
Q1
2N3904
Generic transistor driver - designed on all PCBs
Hacker Company
Handheld RF200 Mesh Sch R1b
DuinoMiteMegaAndy
Rev 1.0
5/1/2012
Page # or name