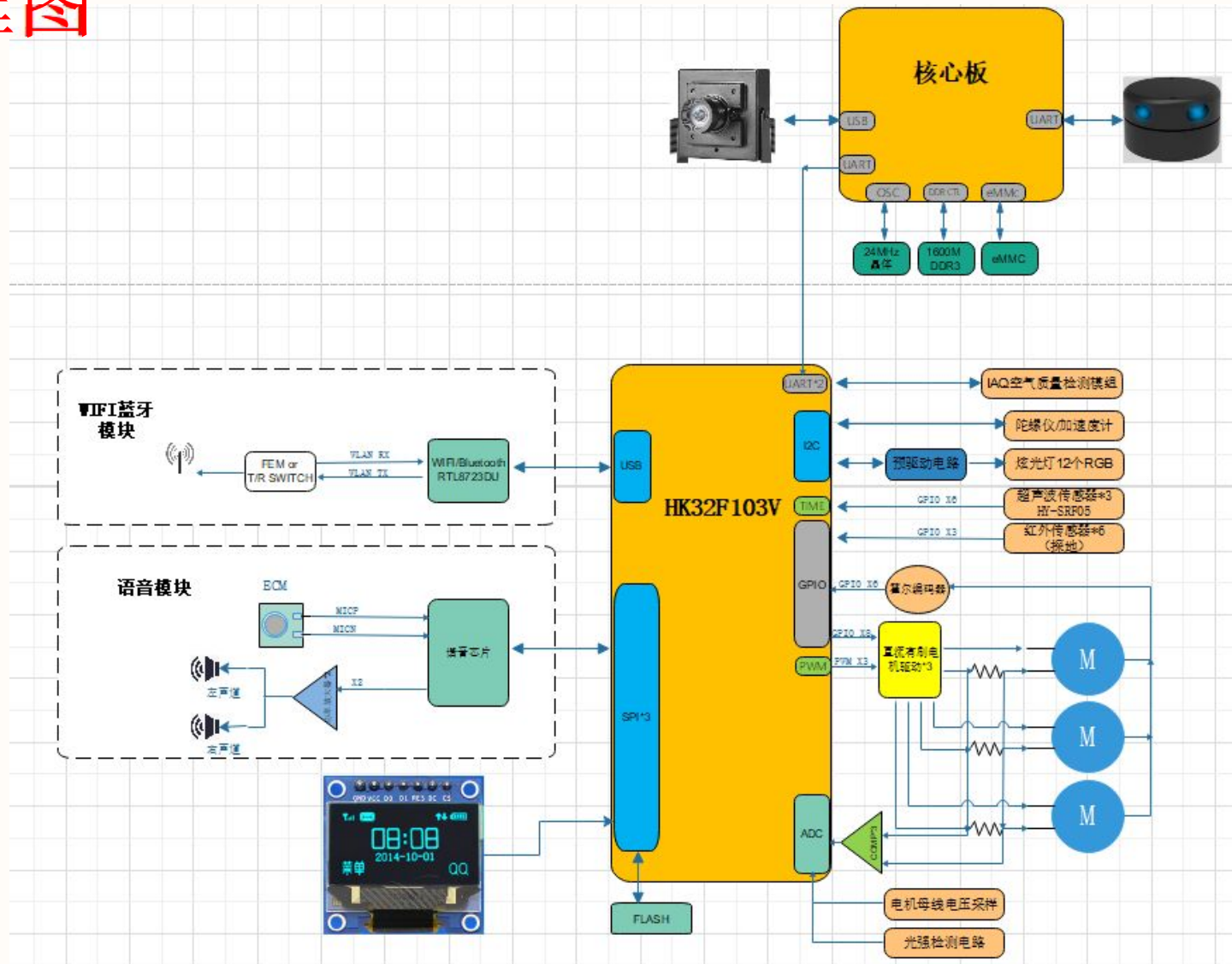
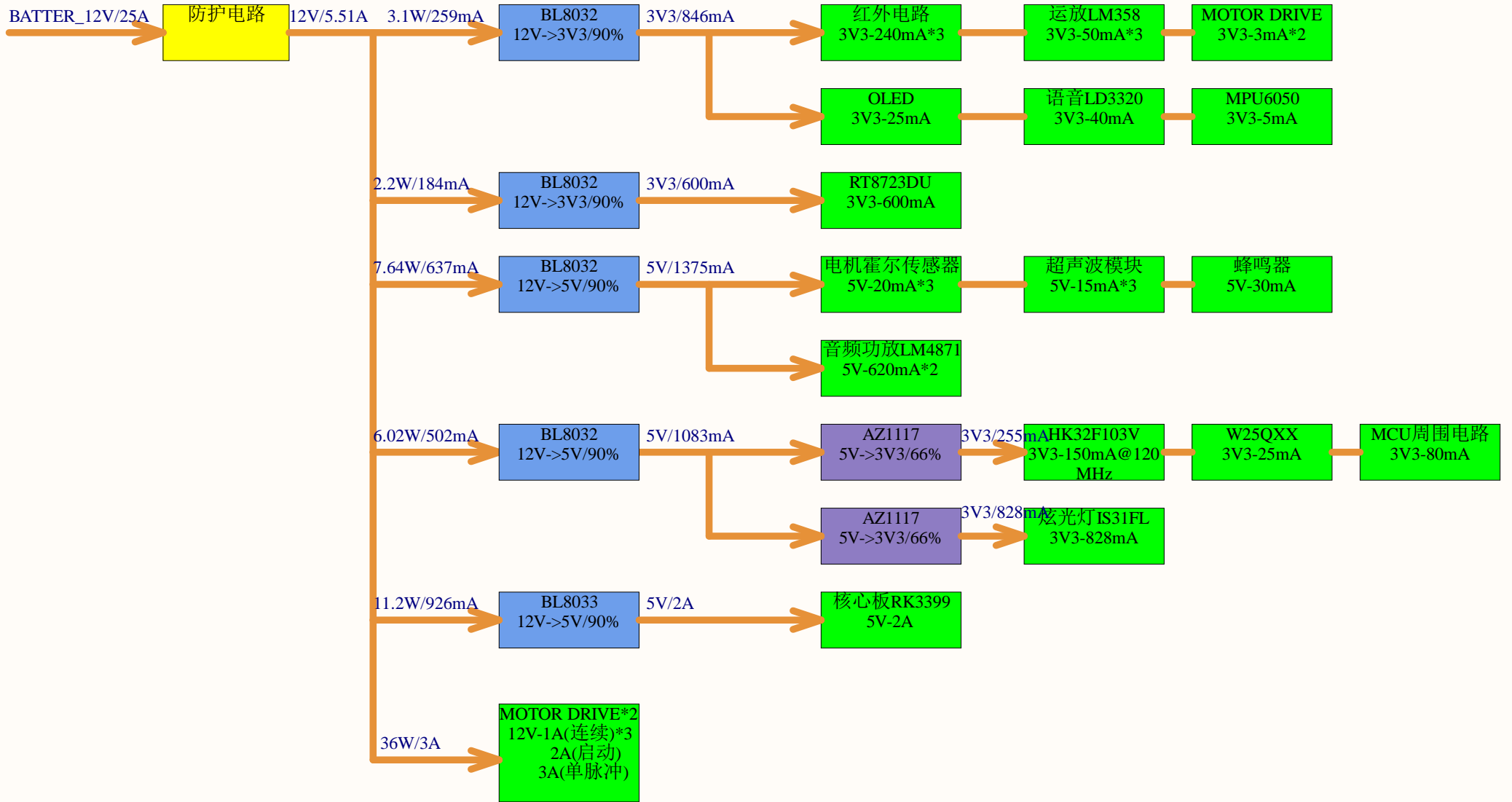


逻辑框图



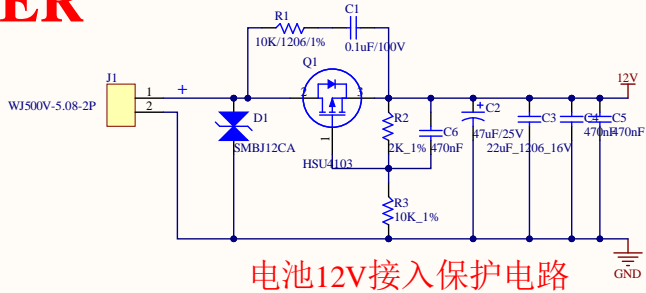
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Size: A4	Number: *	Revision: *		
Date: 2021/9/20	Time: 17:40:03	Sheet * of *		
File: E:\硬件设计\硬件例程\Seven_reshuixunhuanben\家庭监护机器人1-逻辑框图.SchDoc				

电源树图

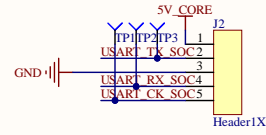


Title *			Altium Limited L3, 12a Rodborough Rd Frenchs Forest NSW Australia 2086	
Size: A4	Number: *	Revision: *		
Date: 2021/9/20	Time: 17:40:04	Sheet * of *		
File: E:\硬件设计\硬件例程\Seven_reshuixunhuanben\家庭监护机器人2-电源树.SchDoc				

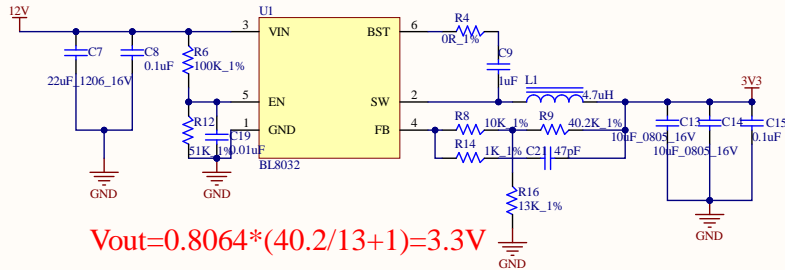
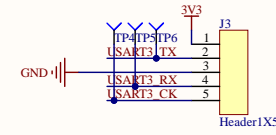
POWER



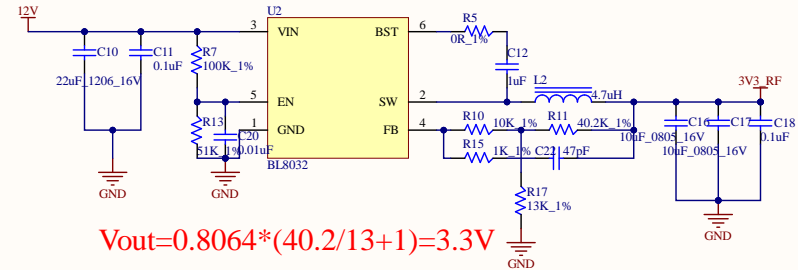
电池12V接入保护电路



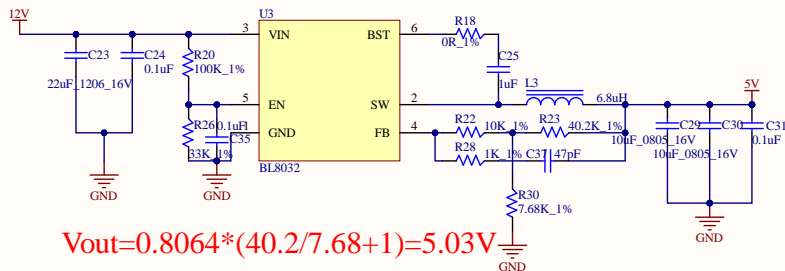
核心板供电及串口



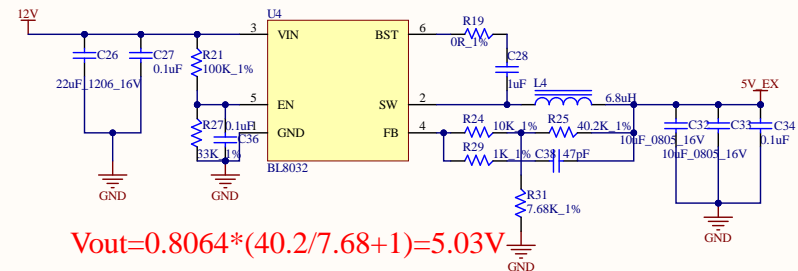
$$V_{out} = 0.8064 * (40.2/13 + 1) = 3.3V$$



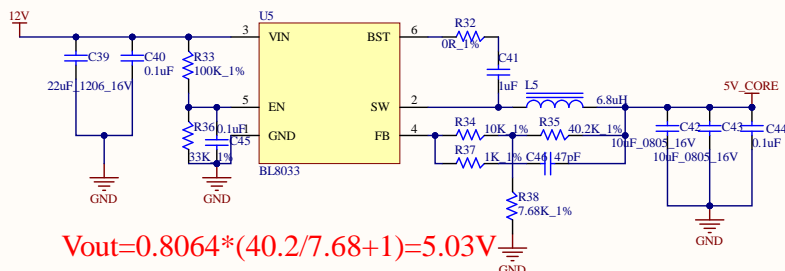
$$V_{out} = 0.8064 * (40.2/13 + 1) = 3.3V$$



$$V_{out} = 0.8064 * (40.2/7.68 + 1) = 5.03V$$

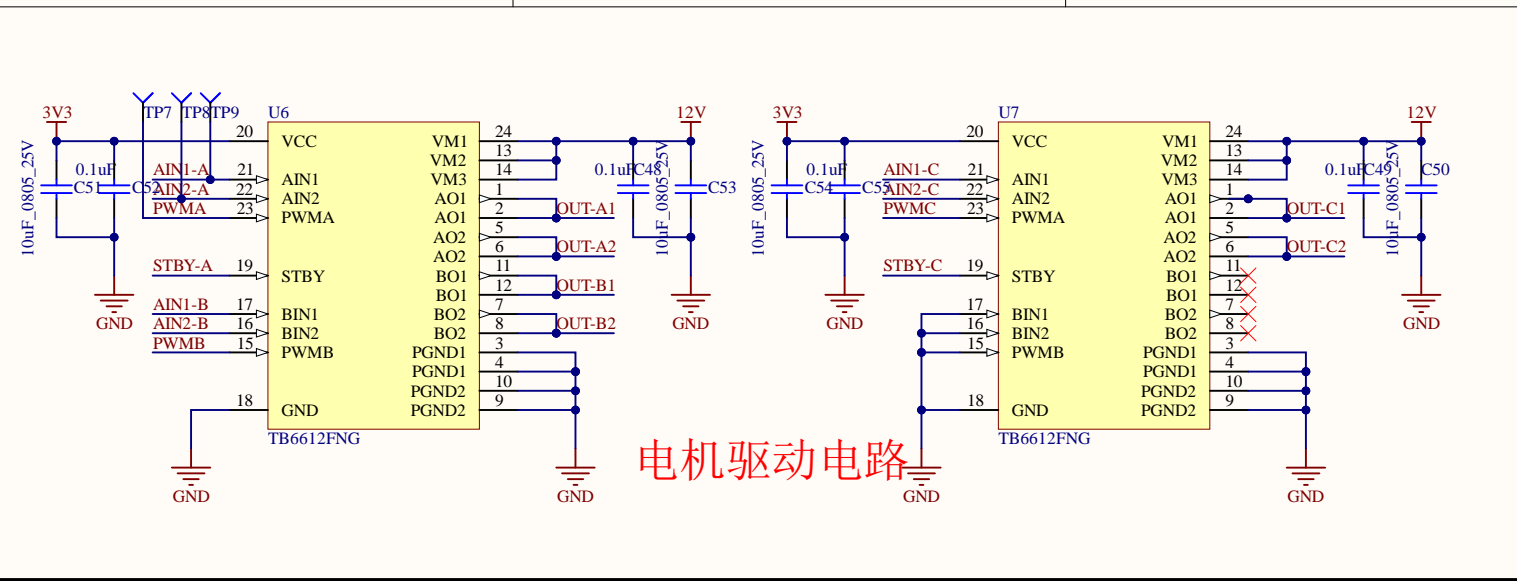


$$V_{out} = 0.8064 * (40.2/7.68 + 1) = 5.03V$$

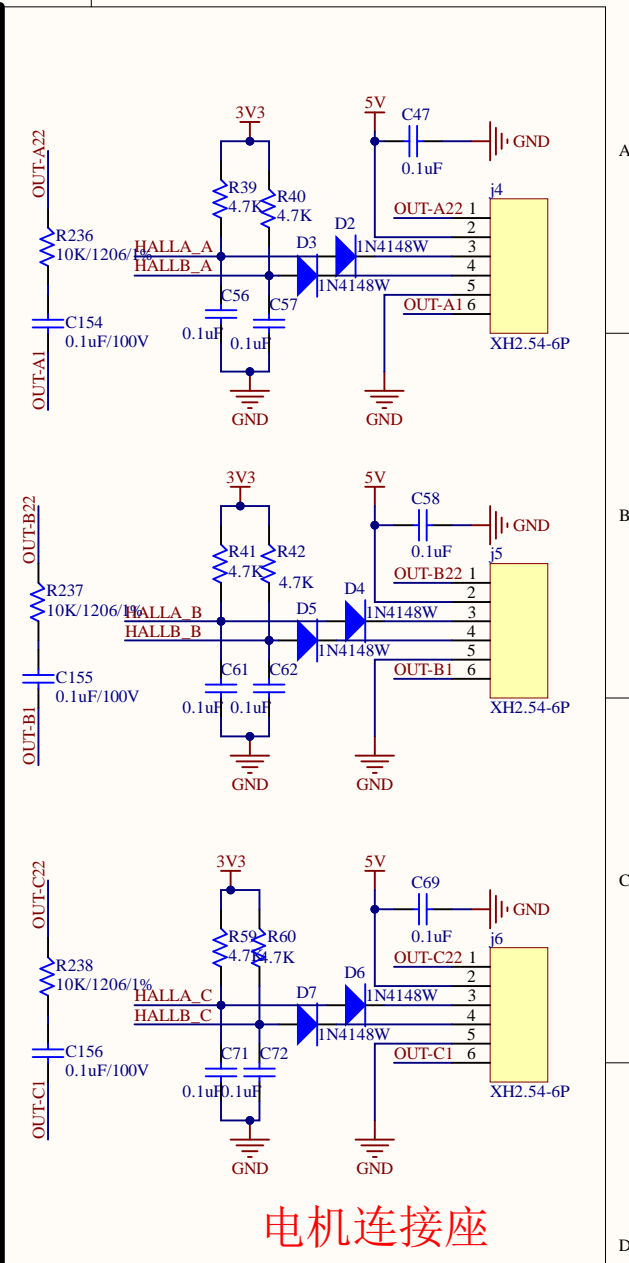


$$V_{out} = 0.8064 * (40.2/7.68 + 1) = 5.03V$$

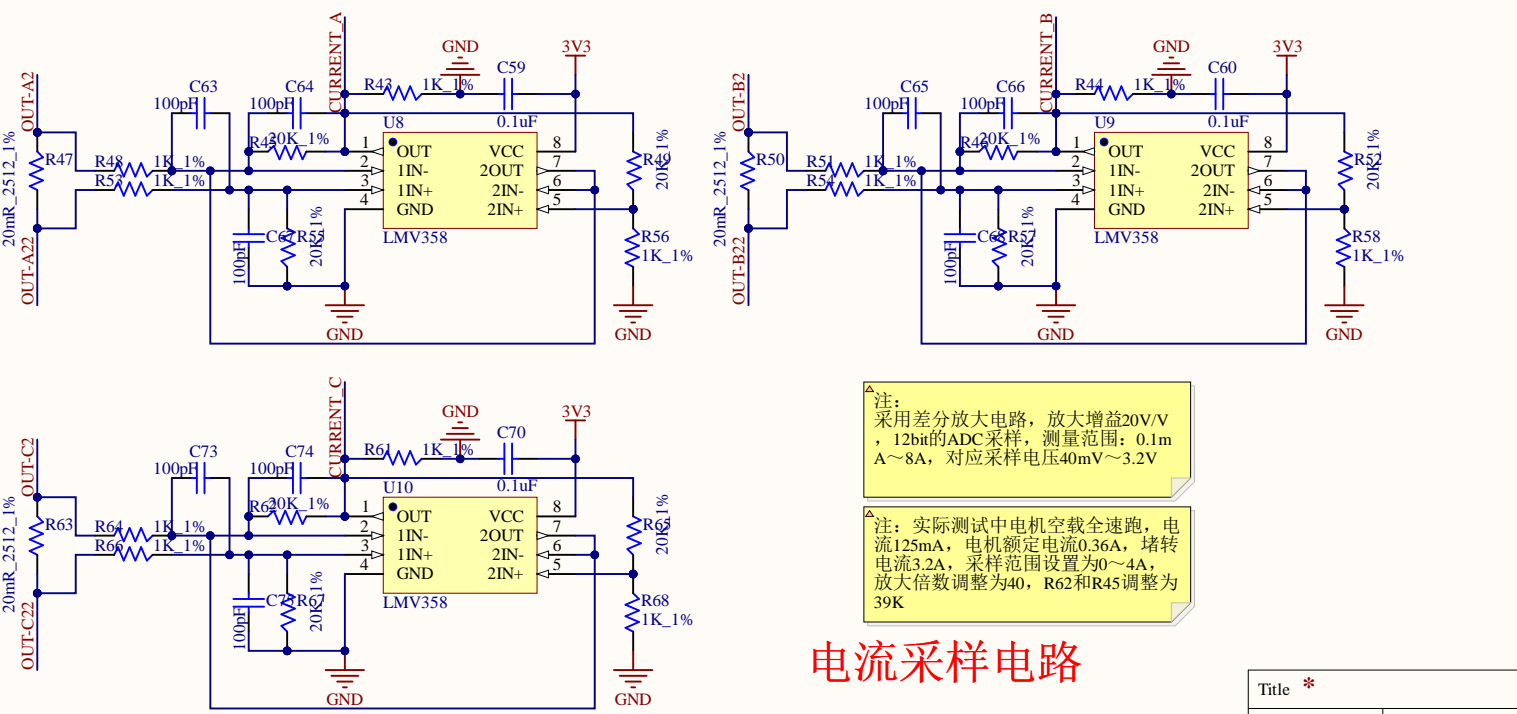
Title		
Size	Number	Revision
A3		
Date:	9/20/2021	Sheet of
File:	E:\硬件设计\3-POWER.SchDoc	Drawn By:



电机驱动电路



电机连接座

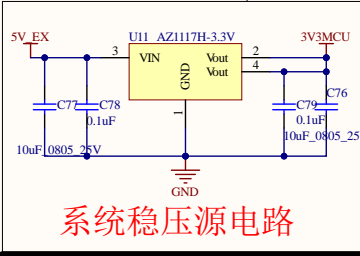


电流采样电路

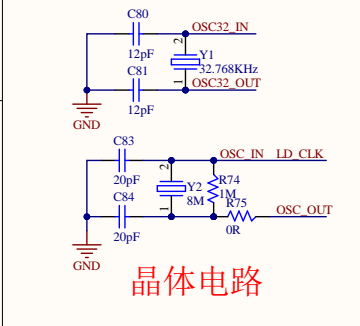
注：
采用差分放大电路，放大增益20V/V，
12bit的ADC采样，测量范围：0.1m
A~8A，对应采样电压40mV~3.2V

注：实际测试中电机空载全速跑，电
流125mA，电机额定电流0.36A，堵转
电流3.2A，采样范围设置为0~4A，
放大倍数调整为40，R62和R45调整为
39K

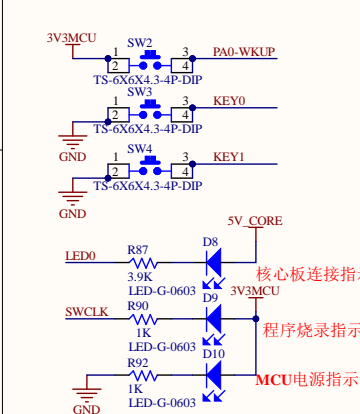
Title *			Altium Limited L3, 12a Rodborough Rd Frenchs Forest NSW Australia 2086	
Size: A4	Number: *	Revision: *		
Date: 2021/9/20	Time: 17:40:05	Sheet * of *		
File: E:\硬件设计\硬件例程\Seven_reshuixunhuanbeng\家庭监护机器人4-MOTORDRIVE.SchDoc				



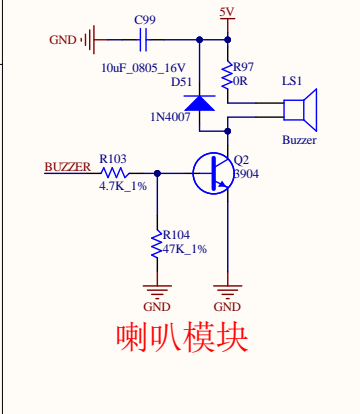
系统稳压源电路



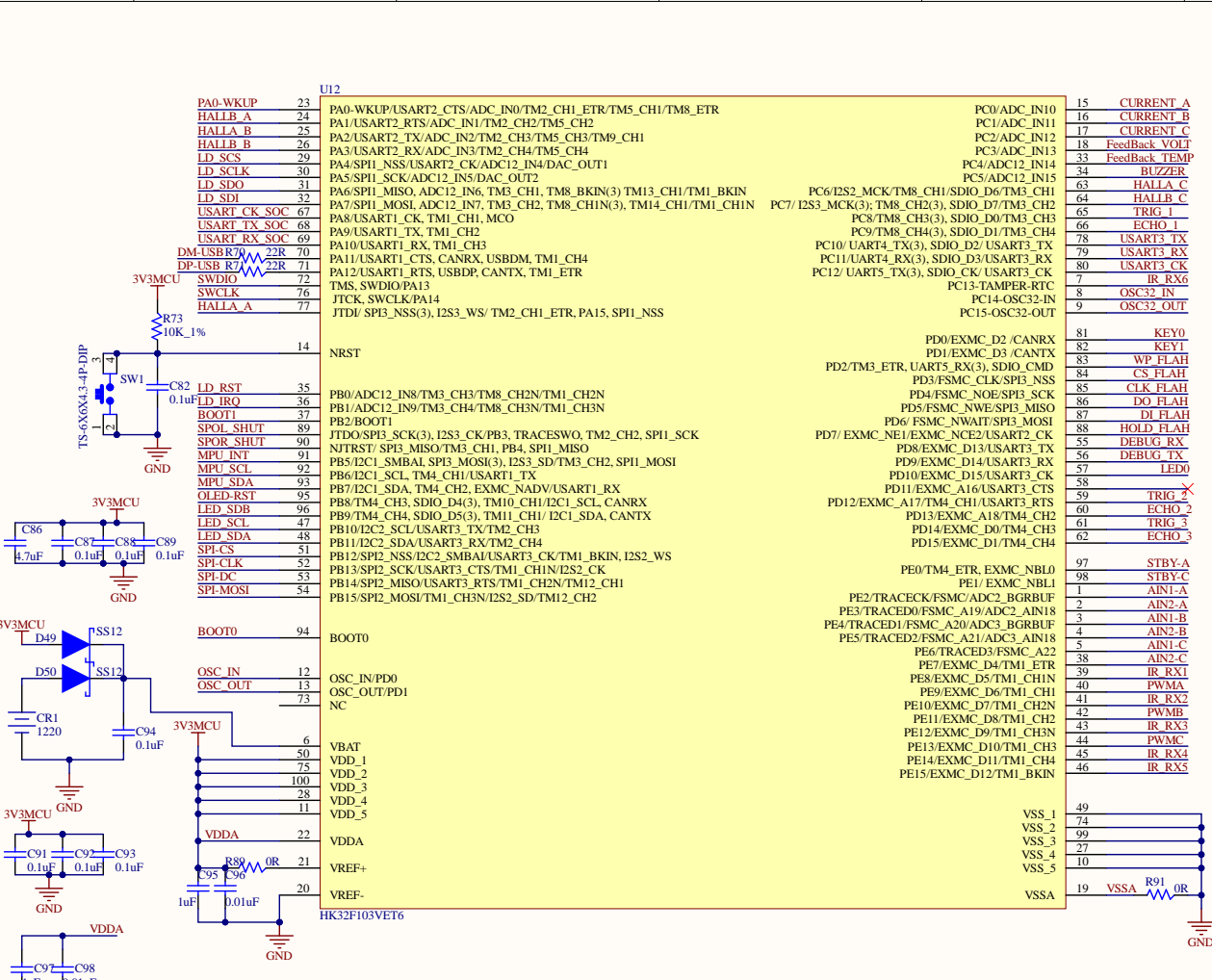
晶体电路



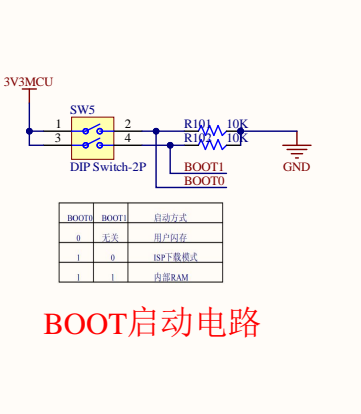
自定义开关/指示灯



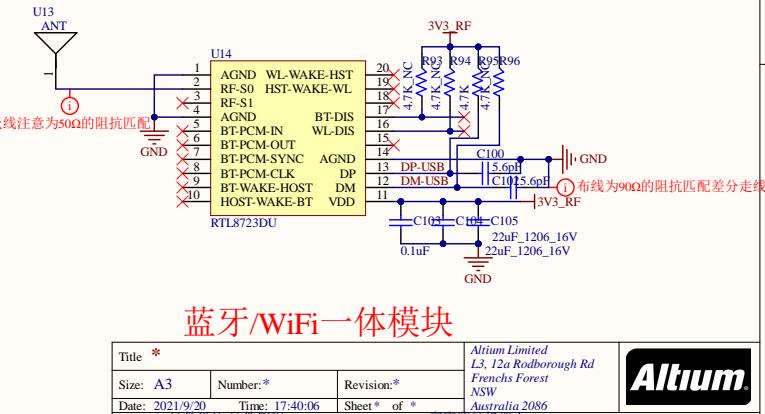
喇叭模块



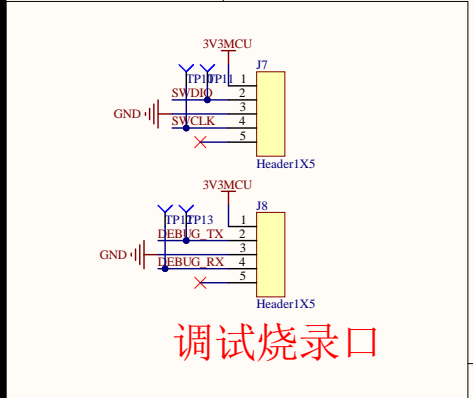
OLED接口屏



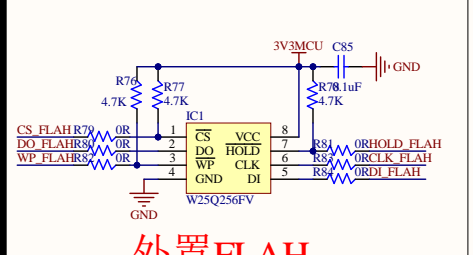
BOOT启动电路



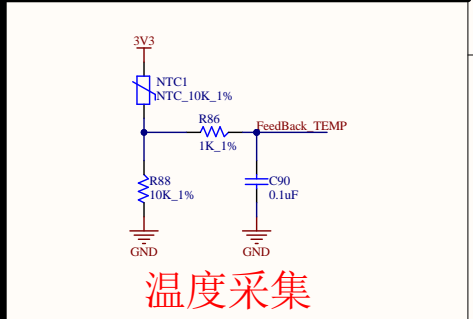
蓝牙/WiFi一体模块



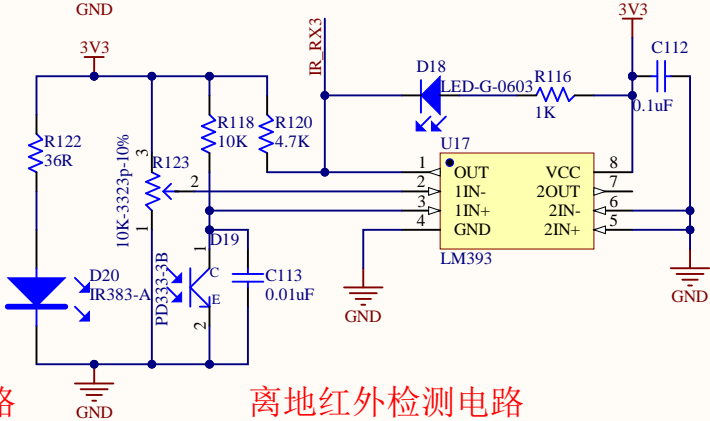
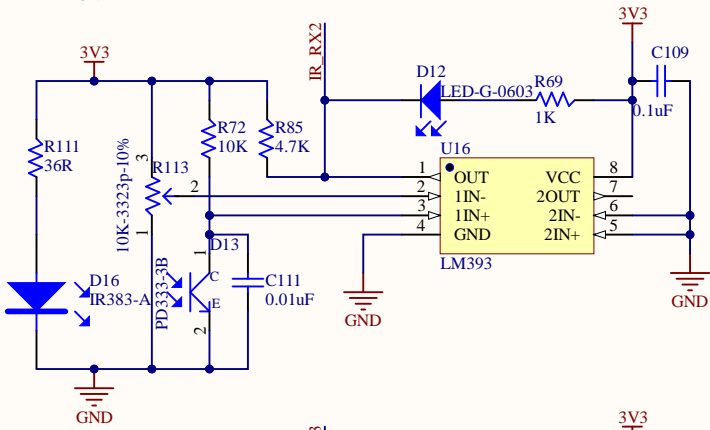
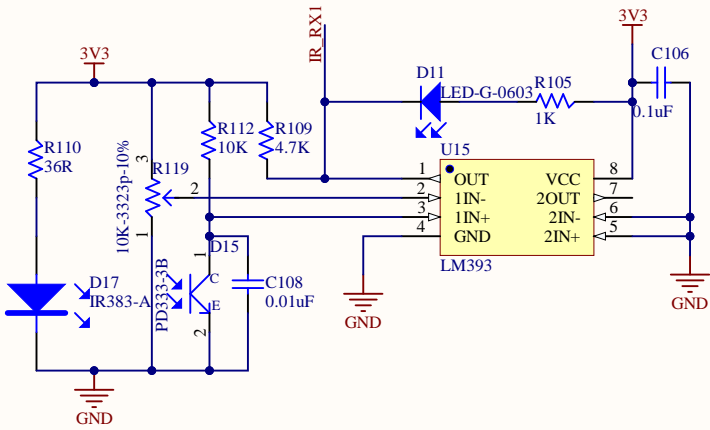
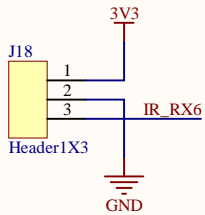
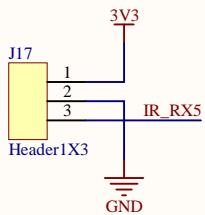
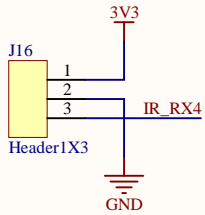
调试烧录口



外置FLASH

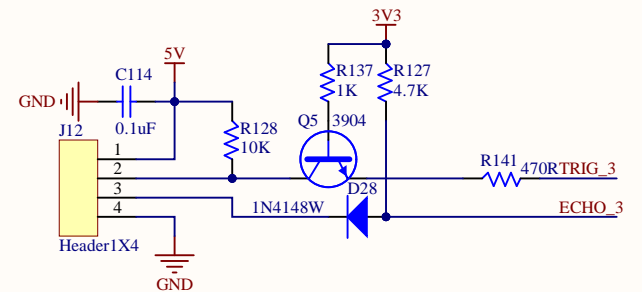
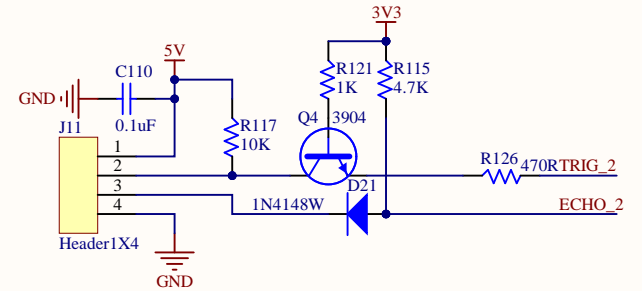
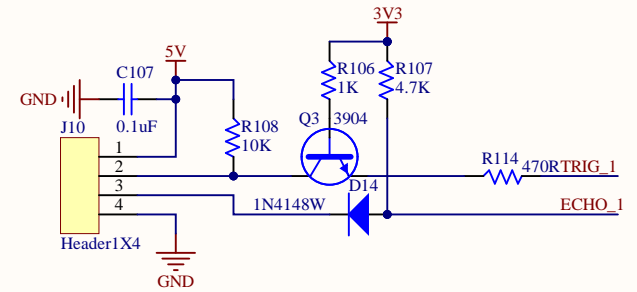


温度采集



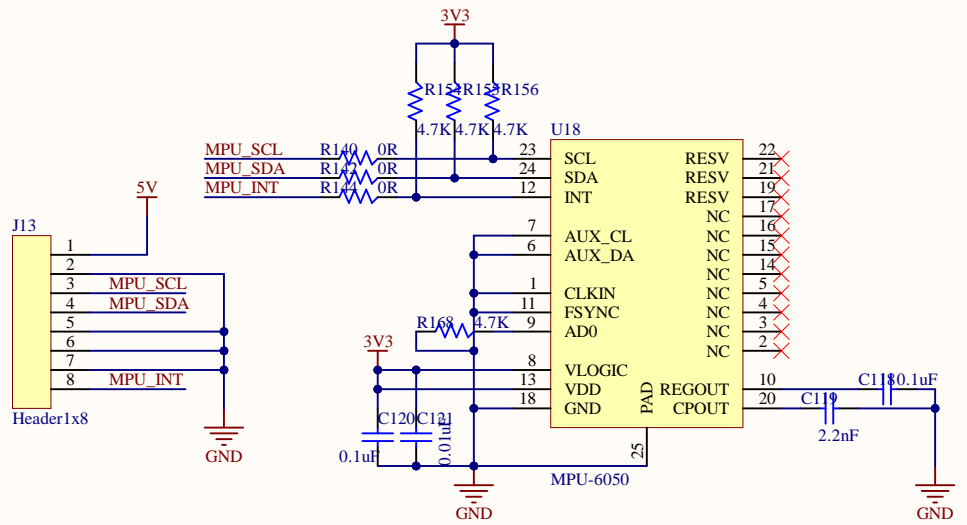
外接悬崖红外检测电路

离地红外检测电路

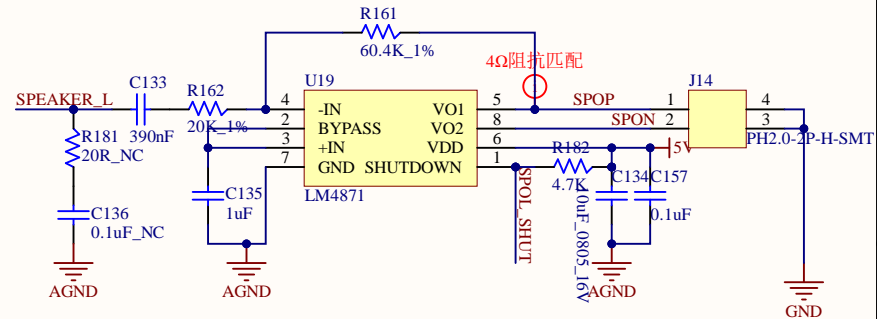


超声波模组: KS-015C

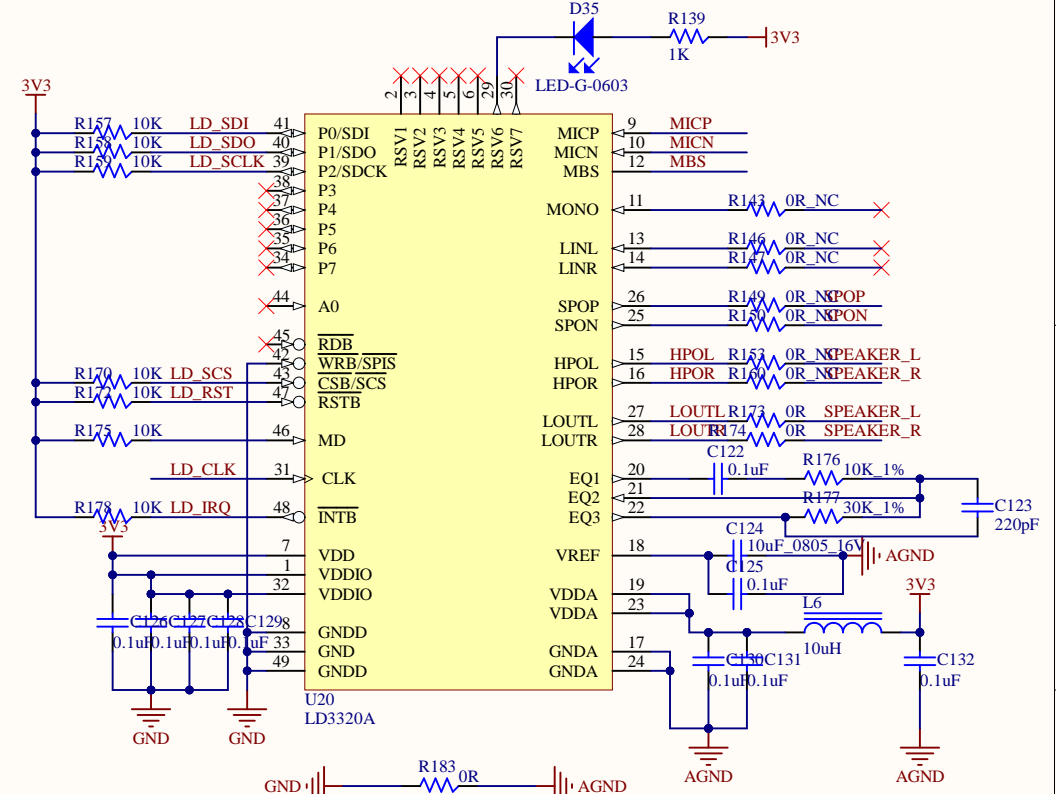
Title *			Altium Limited L3, 12a Rodborough Rd Frenchs Forest NSW Australia 2086	
Size: A4	Number: *	Revision: *		
Date: 2021/9/20	Time: 17:40:07	Sheet * of *		
File: E:\硬件设计\硬件例程\Seven_reshuixunhuanben\家庭监护机器人\6-SENSOR.SchDoc				



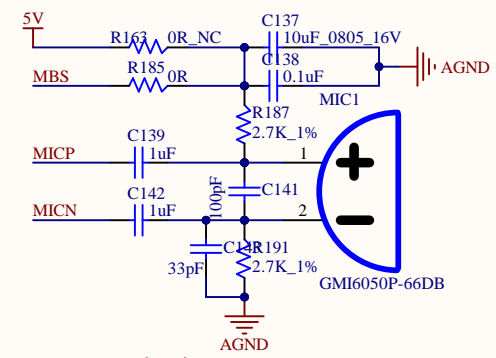
MPU6050并兼容外部模块接入



音响功率放大模块

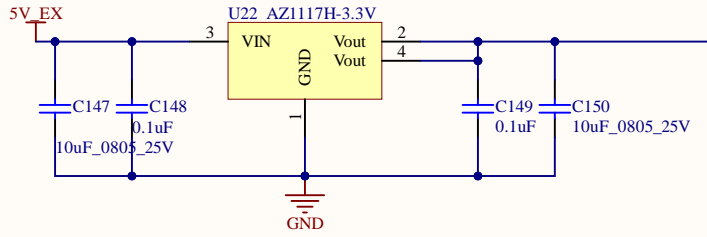


语音交互模块

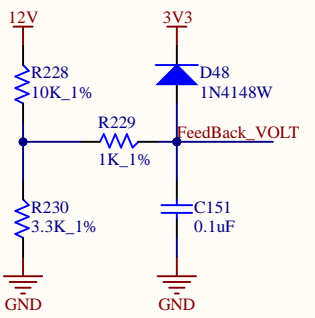
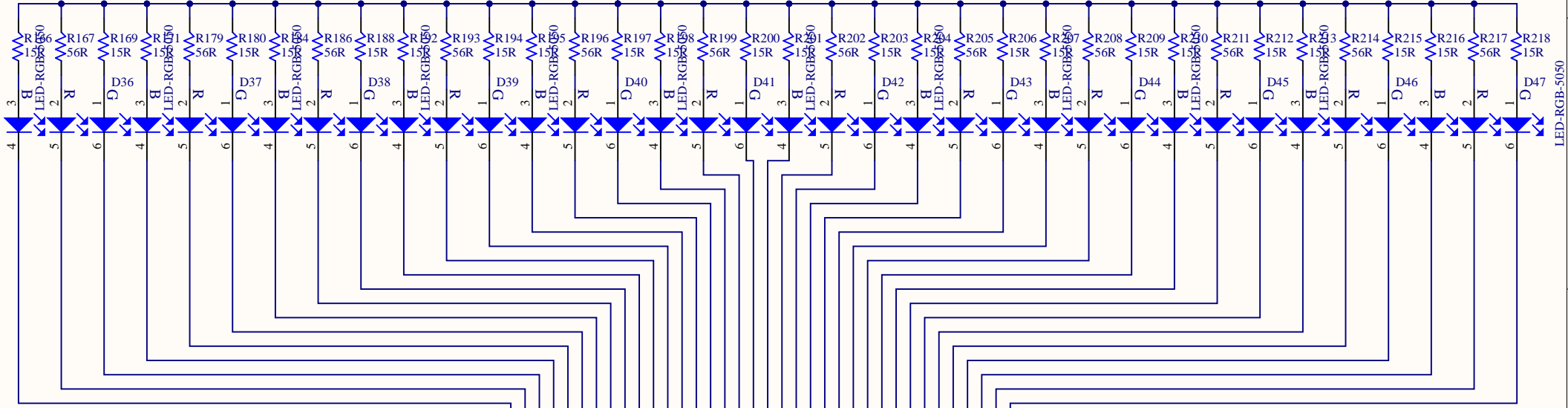


MIC电路

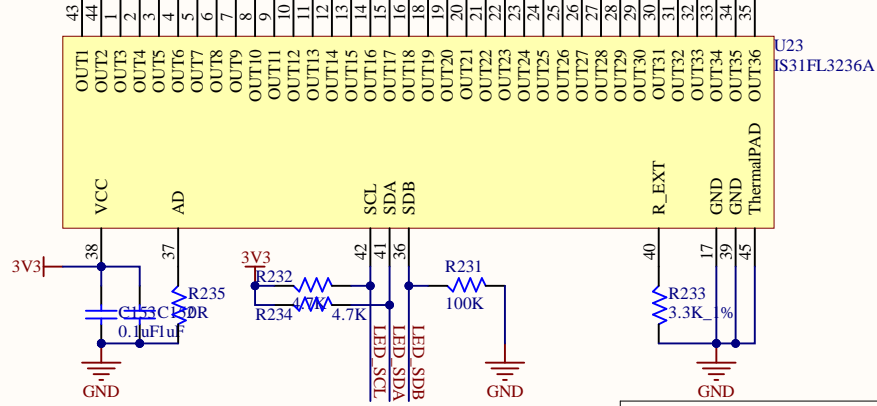
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File: E:\硬件设计\硬件例程\Seven_reshuixunhuanben\家庭监护机器人7-IMU&SENSOR.SchDoc				



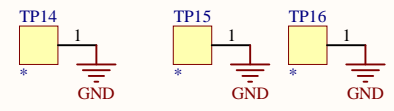
单LED灯最大电流 $I_{max}=58.5*1.3V/3300=23mA$,按照20%的余量, 电源电流供电1A以上
 总功耗= $24*(0.023A*3V+0.023*0.023*15R)+12*(0.023A*2.2V+0.023*0.023*56R)=2.809W$



电机电压采集



LED氛围灯光



Title *			Altium Limited L3, 12a Rodborough Rd Frenchs Forest NSW Australia 2086	
Size: A4	Number: *	Revision: *		
Date: 2021/9/20	Time: 17:40:08	Sheet * of *		
File: E:\硬件设计\硬件例程\Seven_reshuixunhuanbeng家庭监护机器人\8-LEDmatrix.SchDoc				

