Supporting document for schematic WYGIGS-001 - $50 Robot with 5v Bluetooth, Sharp IR Distance Sensor and old style programmer. V1.0 - 15/09/15

Parts list

B1	6v	for Servos
B2	9v	for Microcontroller, sensors and Bluetooth
Bluetooth 1	JY-MCU	
	Datasheet:	https://core-electronics.com.au/attachments/guides/Product-User-Guide-JY-MCU-Bluetooth-UART-R1-0.pdf
C1	0.1uF	Ceramic
C2	470uF	Electrolytic
C3	0.1uF	Ceramic
C4	470uF	Electrolytic
C5	220uf	Electrolytic
C6	10uf	Tantalum
C7	0.1uF	Ceramic
C8	0.1uF	Ceramic
C9	0.1uF	Ceramic
IR Sensor 1	GP2D12	
	Datasheet:	http://www.sharpsma.com/webfm_send/1203
	Hints:	http://www.robotroom.com/DistanceSensor3.html
JP1	Debug	
LED1	Programmed	
LED2	Power	
Light Sensor 1	Left	
Light Sensor 2	Right	
P	Programmer Header	
R1	1.62K	
R2	2K	
Servo1	Left	
Servo2	Right	
Servo3	IR Sensor	
SW1	DPDT Miniature Slide switch	
U1	LM7805CV	
	Datasheet:	https://www.fairchildsemi.com/datasheets/LM/LM7805.pdf
U2	ATMega8 DIP	
	Datasheet:	http://www.atmel.com/Images/Atmel-2486-8-bit-AVR-microcontroller-ATmega8_L_summary.pdf

Notes

1) SW1 is a single switch to turn off the whole thing. JP1 overrides this allowing power to the microcontroller and sensors, but not servos.
2) Added capacitors around the voltage regulator – C2 and C4 for surges, and C1 and C3 for noise and spikes.
3) Added R2 and LED2 as an indicator the power is on.
4) Added IR Sensor 1, but I understand this is VERY noisy. I suspect it corrupts by UART/Bluetooth communication somehow, so added C6 to try to resolve this.
5) Bluetooth 1 is my cheap Bluetooth board. I've also put C9 on this to reduce noise.
6) C5 is taken from the original $50 design, but I don't understand what it is for.
7) I also took the liberty of adding another decoupling capacitor on the programmer header.