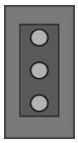
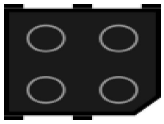
Circuits and Components Checklist

Component	Picture	Symbol	Breadboard holes	Note	Added to breadboard?
Power switch			F1, F2, F3	Direction it is facing does not matter, but make sure to slide switch down (towards row 30, away from row 1), this is the "off" position	☐
Jumper wire			J2 to (+) bus	Color does not matter	☐
Jumper wire			Left side (+) bus to right side (+) bus	Color does not matter	☐
Jumper wire			Left side (-) bus to right side (-) bus	Color does not matter	☐
MOSFET			C11, C12, C13	Writing should face to the left, large silver tab should face to the right	☐
MOSFET			C18, C19, C20	Writing should face to the left, large silver tab should face to the right	☐
Jumper wire			A13 to (-) bus	Color does not matter	☐
Jumper wire			A20 to (-) bus	Color does not matter	☐

Component	Picture	Symbol	Breadboard holes	Note	Added to breadboard?
Diode			A12 to (+) bus	Gray band must face to the left. Optional: shorten leads	☐
Diode			A19 to (+) bus	Gray band must face to the left Optional: shorten leads	☐
4.7k Ω resistor			A11 to (-) bus	Direction does not matter. Make sure you pick the right color bands! (yellow, purple, red, gold)	☐
4.7k Ω resistor			A18 to (-) bus	Direction does not matter. Make sure you pick the right color bands! (yellow, purple, red, gold)	☐
220 Ω resistor			A5 to (+) bus	Direction does not matter. Make sure you pick the right color bands! (red, red, brown, gold)	☐
220 Ω resistor			A25 to (+) bus	Direction does not matter. Make sure you pick the right color bands! (red, red, brown, gold)	☐
Top IR sensor			Black wire to (-) bus Red wire to (+) bus Blue wire to B5 Green wire to B11	There is a small notch in one corner of the black plastic case. Place notch in top right with pins facing you. Clockwise from top right, connect red, green, blue, and black wires.	☐

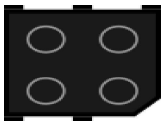
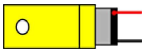
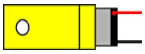
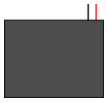
Component	Picture	Symbol	Breadboard holes	Note	Added to breadboard?
Bottom IR sensor			Black wire to (-) bus Red wire to (+) bus Blue wire to B25 Green wire to B18	There is a small notch in one corner of the black plastic case. Place notch in top right with pins facing you. Clockwise from top right, connect red, green, blue, and black wires.	☐
Top motor			Red lead to (+) bus Black lead to E12	When the robot is driving forward, this is the "right" motor	☐
Bottom motor			Red lead to (+) bus Black lead to E19	When the robot is driving forward, this is the "left" motor	☐
Battery holder			Red lead to J1 Black lead to (-) bus	Do not insert batteries until circuit is complete	☐
AA battery			N/A	Insert into battery holder. Make sure (+) signs on batteries line up with (+) signs in battery holder	☐

Table 2. List of circuit components and locations.

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