**Challenge: Robo-Tagger**

Design, build & program a Robo-Tagger that writes “JMS” on a whiteboard.

* + Each letter must be 10 inches tall (+/- 1 inch)
  + Each letter must evenly spaced 3 inches apart (+/- 1 inch)
  + All letters must be aligned horizontally (+/- 1 inch)
  + Uses only the parts from one kit plus a dry-erase marker

*You can design your own robot body, OR you can build the tribot in your kit instruction manual. If you build your own, make sure it has the ability to perform swing-turns AND point-turns.*

*You will need to design an “arm” that uses your L-motor to lift and lower the dry-erase marker. You decide what this arm looks like and how it attaches to the body of your robot base. Use the Engineering Process to develop your Robo-Tagger.*

* You will document this project in your Engineering Journal.
  + Sketch an initial design for your tagger arm.
  + Keep track of at least four problems and solutions that you encounter as you work.
    - These can be problems with the robot design OR the program.
  + Draw your final robot design once you are done, with enough detail to replicate.

*BONUS OPPORTUNITY:*

* + *If you and your partner create an additional program for your robot to write “WADE” or “Wade”, you can earn a bonus point!*

*Hint:* This will require a large program, so check your programming as you go!

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| **Grading Requirement** | Points Possible | Points Earned |
| Engineering Journal: includes initial sketch, 4 problems/solutions, and detailed final drawing. | 6 |  |
| Robot arm holds pen securely, and can lift and lower the marker | 2 |  |
| Robot clearly writes “JMS” running one program, with unattached letters (1 pt. per letter, 1 pt. for spaces) | 4 |  |
| Each letter is 10 inches tall (+/- 1 inch) | 2 |  |
| Each letter spaced 3 inches apart (+/- 1 inch) | 2 |  |
| Letters aligned horizontally (+/- 1 inches) | 2 |  |
| *Bonus: Write “WADE” or “Wade”* | *+1* |  |
| **TOTAL** | **18** |  |