Cadathon - Electrical Guidelines

The ideal submission for the Electrical team on the CADathon

- Guidelines

Guidelines

Electrical Subteam CADathon

1. Tools
    1. Each team must use AT LEAST one of the following tools to illustrate wire routing and wires in the usage. Measurements must be accurate and under a common scale factor
        1. draw.io
        2. Figma / FigJam
        3. AutoCAD
    2. *Additional*: You may include wiring in a 3D landscape to help further your ideals however the minimum is 2D wiring of ALL subsystems
        1. Taking CAD (Computer Aided Design) pictures and drawing wiring on them

2. Requirements
    1. The plans created for wiring must meet the following expectations
        1. Consistent color coding across all diagrams to represent different wire types
            1. All wires are labeled and color-coded to connect to components and work properly
        2. Every wire must be clearly labeled to show its purpose and destination (e.g., power, CAN, sensor, or signal).
            1. All connections to components are specified with Voltage and Amperage, as well as taking into account of Port Space on components
        3. Wiring plans must cover every subsystem of the robot (drivetrain, intake, shooter, climber, etc.).
            1. Include mounting provisions such as zip-tie holes, cable tie mounts, or clips to guide wire routing within the CAD structure.
        4. Strain relief, stress points, snag points, and other points of contact are properly addressed
            1. Incorporate snakeskin, wire sleeving, or e-chains where necessary, and clearly show them in your drawings to have protected movement control
        5. Components are added onto the CAD of the finished robot design and are strategically purposeful

    1. Mounting of components in a way that works with the Controls System as well as the robot's design
6. The following components are REQUIRED in your robots CAD
    1. RSL
    2. PDH
    3. Battery
    4. Robo rio
    5. Radio
7. The usage of the following CAN be used to highlight the strategic capabilities of the robot
    1. Cameras
    2. Sensors
    3. VRM