**Robot Implementing Process**

# **Empathy**

* not needed

# **Define**

* **Rules:**

[wro-association.org/wp-content/uploads/WRO-2025-Future-Engineers-Self-Driving-Cars-General-Rules.pdf](https://wro-association.org/wp-content/uploads/WRO-2025-Future-Engineers-Self-Driving-Cars-General-Rules.pdf)

* **Dimensions:** 30\*20\*30
* **Weight:** 1.5KG
* **Problem Statement:**

Design and implement an autonomous robotic vehicle that utilizes computer vision to navigate obstacles and perform self-parking. The robot must be capable of recognizing and differentiating between multiple colors (green, red, pink, black, orange, and blue) and complete the course within 180 seconds.

* **Component Selection and Requirements:**

The selection and justification ofrequired components for building the autonomous robotic system.

* **Controller** (to orchestrates processes and connect parts)
* **Motors** (for movement and control)
* **Camera Module** (for computer vision and color detection)
* **Sensors** (for acceleration calculations and environmental awareness)
* **Wheels and Chassis Design** (for stability and mobility)
* **Wiring and Custom PCB** (for electrical connections and control circuitry)
* **Power Source** (to supply adequate and stable power to all components)

# **Ideate:**

* think about ideas more deeply
* Give general ideas, really anything that may work, then cancel ideas that don’t approve the describing robot sentence.
* Robot Sketch on paper
* Begin implementation:

# **Prototyping**

* real-quick implementation to check if our ideas can be implemented aon a good way in a real world
* First real test
* Begin testing the robot functionality, don’t focus on its view just implement it.
* Does the functionality work? If yes you can use it or if not begin a robot from zero having a good design, if not, loop back to first prototype.
  + - testing
    - feedback
* Loop to implementation again...