Assignment

A diagram of a software development process

Description automatically generated

* **Requirements Analysis:** Define robot's functions: movement (forward, backward, left, right at different speeds), obstacle avoidance (within 20 cm), and remote control via internet.
* **System Design:**

- High-Level Design: Outline architecture including control system, sensors, actuators, and communication.

- Detailed Design: Breakdown into components, design chassis, wheels, motor controllers, sensors, and communication interface.

* **Module Implementation:**

- Hardware: Assemble components, mount wheels, install motor controllers, integrate sensors, connect microcontroller.

- Software: Develop firmware for motor control, implement obstacle detection algorithms, and create remote control software.

* **Integration Testing:**

Assemble hardware, integrate software, conduct functional testing for movement, obstacle avoidance, and remote control.

* **Validation and Verification:**

Validate against user needs, test in real-world scenarios for performance, and verify compliance with requirements.

* **Operation and Maintenance:**

Document manuals, provide user training, establish maintenance schedule.