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**SOFTWARE MODELING ASSIGNMENT**

1. draw the State diagram as well as the specification(narration) of Gishushu traffic lights

**SPECIFICATION**

To create a state diagram for the Gishushu traffic light system in Rwanda, we'll consider the specific context and regulations typically observed in that region. Below is an enhanced state diagram incorporating common features and practices of traffic lights, including pedestrian signals, as they might be implemented in Gishushu.

### Gishushu Traffic Light System State Diagram

#### States:

1. **Green Light for Vehicles**
   * Duration: Typically 30-60 seconds.
   * Pedestrian signal: Red (no crossing).
2. **Yellow Light for Vehicles**
   * Duration: Typically 3-5 seconds.
   * Pedestrian signal: Red (no crossing).
3. **Red Light for Vehicles**
   * Duration: Typically 30-60 seconds.
   * Pedestrian signal: Red (no crossing).
4. **Pedestrian Walk Signal**
   * Duration: Typically 10-15 seconds.
   * Vehicles must stop.
5. **Pedestrian Don't Walk Signal**
   * Duration: Typically 5-10 seconds.
   * Vehicles may still be stopped or preparing to go.

#### Transitions:

* **From Green to Yellow**: After the green light duration.
* **From Yellow to Red**: After the yellow light duration.
* **From Red to Green**: After the red light duration.
* **From Red to Pedestrian Walk**: When the vehicle light turns red.
* **From Pedestrian Walk to Pedestrian Don't Walk**: After the pedestrian walk duration.
* **From Pedestrian Don't Walk to Red**: When the pedestrian signal changes to don’t walk, returning to the red light for vehicles.

**Notes:**

* **Safety Considerations**: The pedestrian signals are crucial for safety, ensuring pedestrians can cross only when it is safe.
* **Traffic Volume**: The durations might vary based on the traffic volume and time of day.
* **Local Adaptations**: Adjustments might be made based on local traffic patterns and regulations in Gishushu.
* **Technology Integration**: Modern traffic lights may include sensors to adjust timings based on real-time traffic conditions.

This diagram reflects a typical traffic light system that would be relevant to Gishushu in Rwanda, accounting for both vehicular and pedestrian traffic management.

