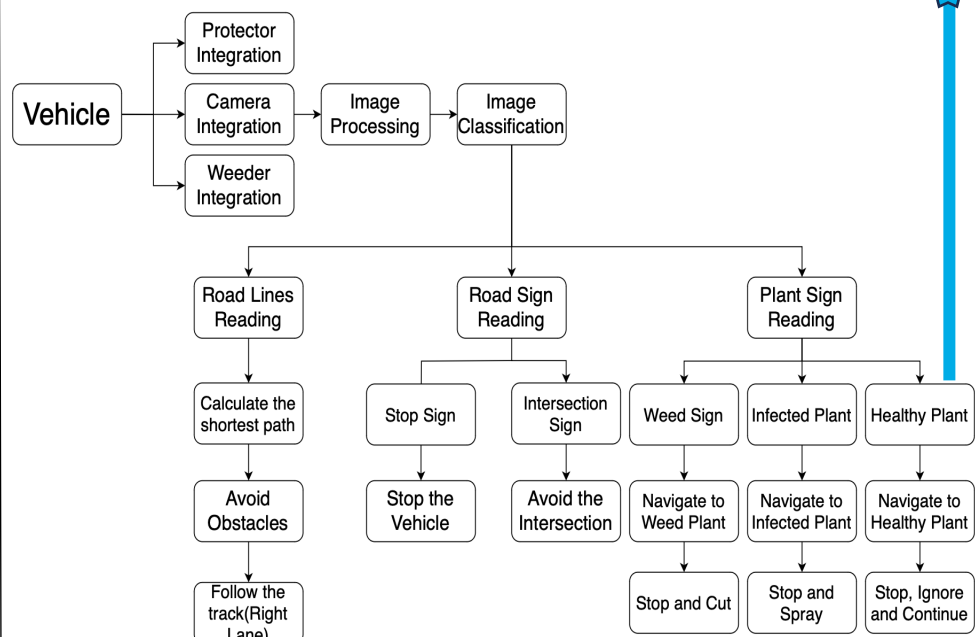
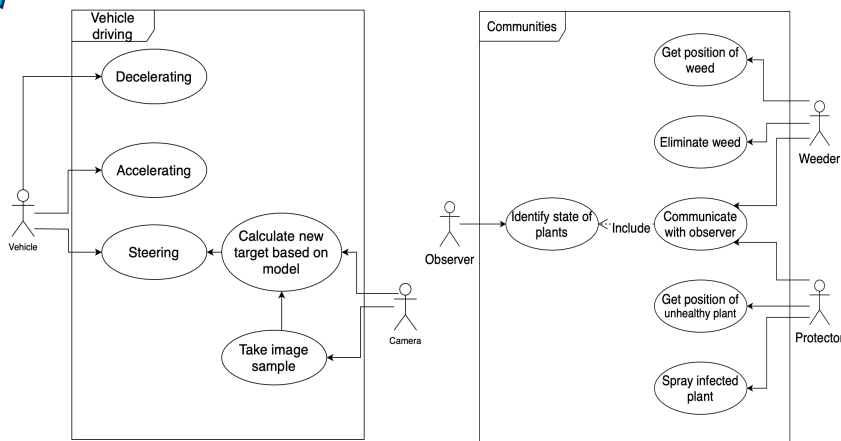


Label	Priority	Description
Hardware		
R-HW-1	MUST	JetRacer: The NVIDIA JetRacer car fitted with necessary action mechanisms.
R-HW-2	MUST	Onboard Camera: For capturing images of the track and surroundings.
Software		
R-SW-1	MUST	Integrated Development Environment (IDE): Python-based IDE to streamline the process of writing, testing, and debugging the code.
R-SW-2	MUST	Deep Learning Model: A model capable of classifying images into categories, such as path, plant types, and road signs.
R-SW-4	MUST	Advanced Navigation Algorithms: Algorithms for calculating the shortest path, avoiding obstacles, and efficiently navigating the track.
Infrastructure		
R-IS-1	MUST	Track: Defined track for JetRacer to navigate and a set of specific road signs and plants for recognition and actions.
Functionality		
R-FT-1	MUST	Basic Actions: Basic navigation capabilities including moving forward, stopping, and
R-FT-2	MUST	Pathfinding: The ability to identify and follow a specific path.
R-FT-3	MUST	Plant-Tasks: The ability to perform different tasks to plants according to what is detected

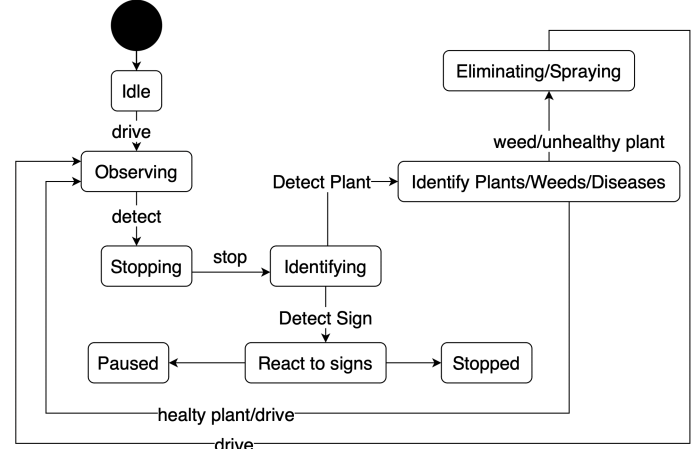
Compact List of Requirements



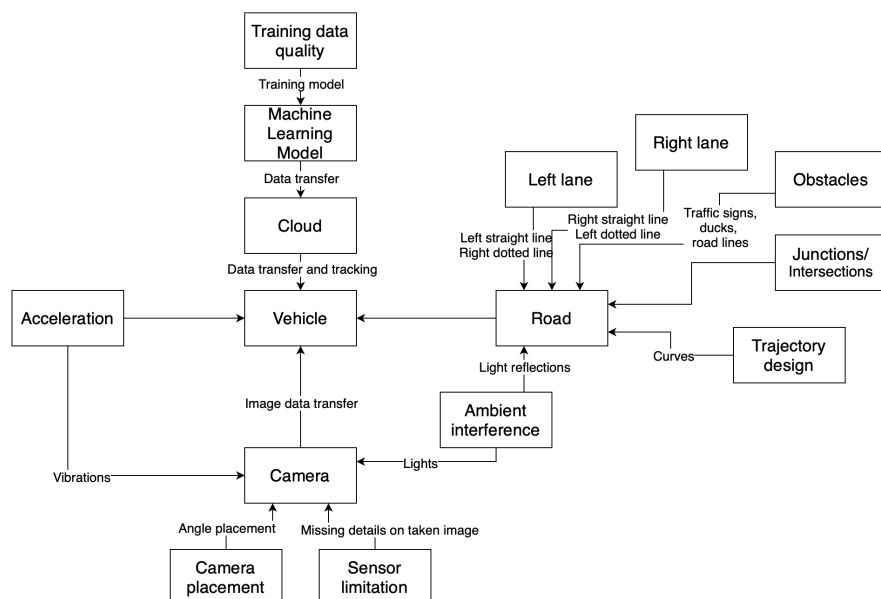
Functions Diagram



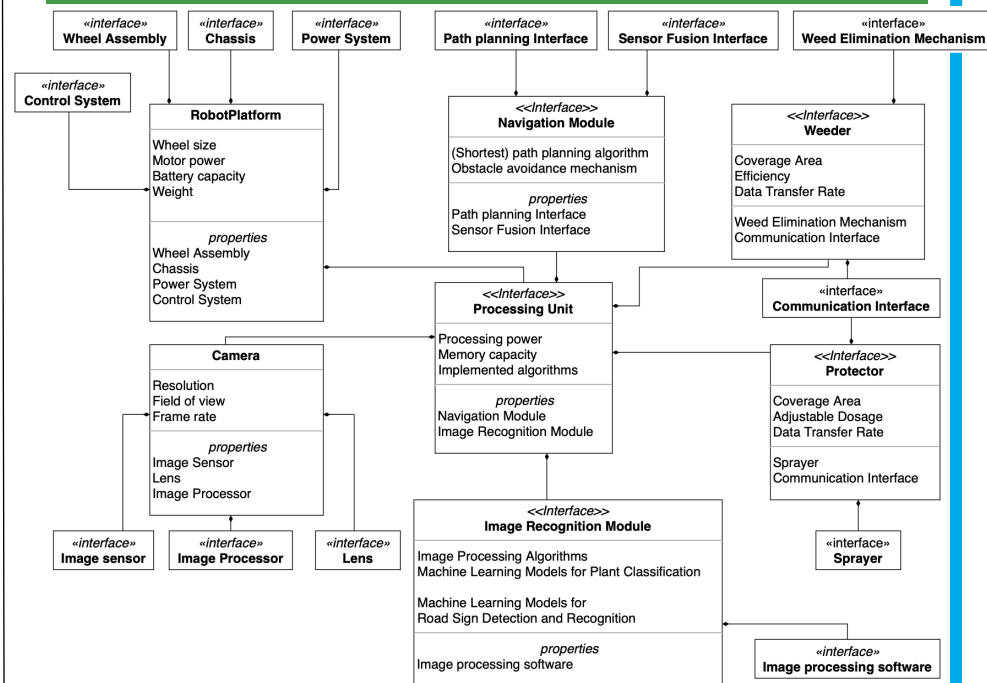
Application Scenarios



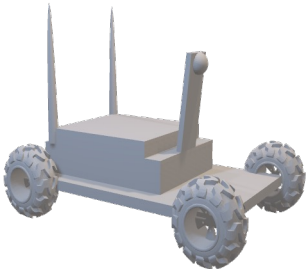
Behaviour Diagram



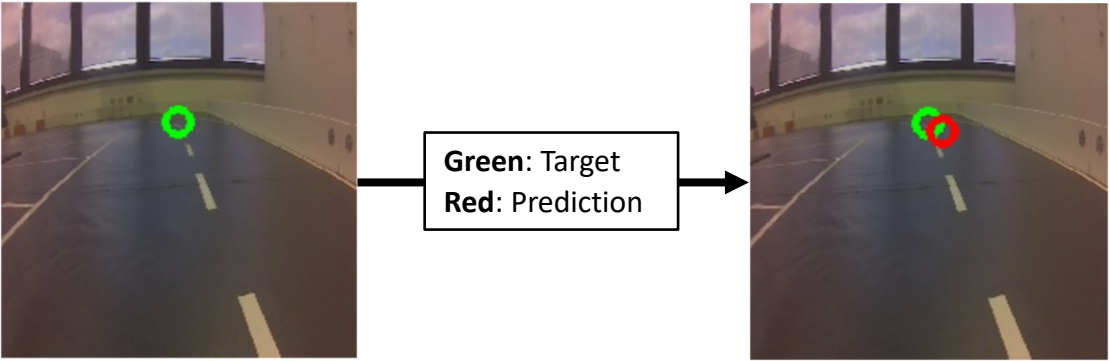
Environment diagram



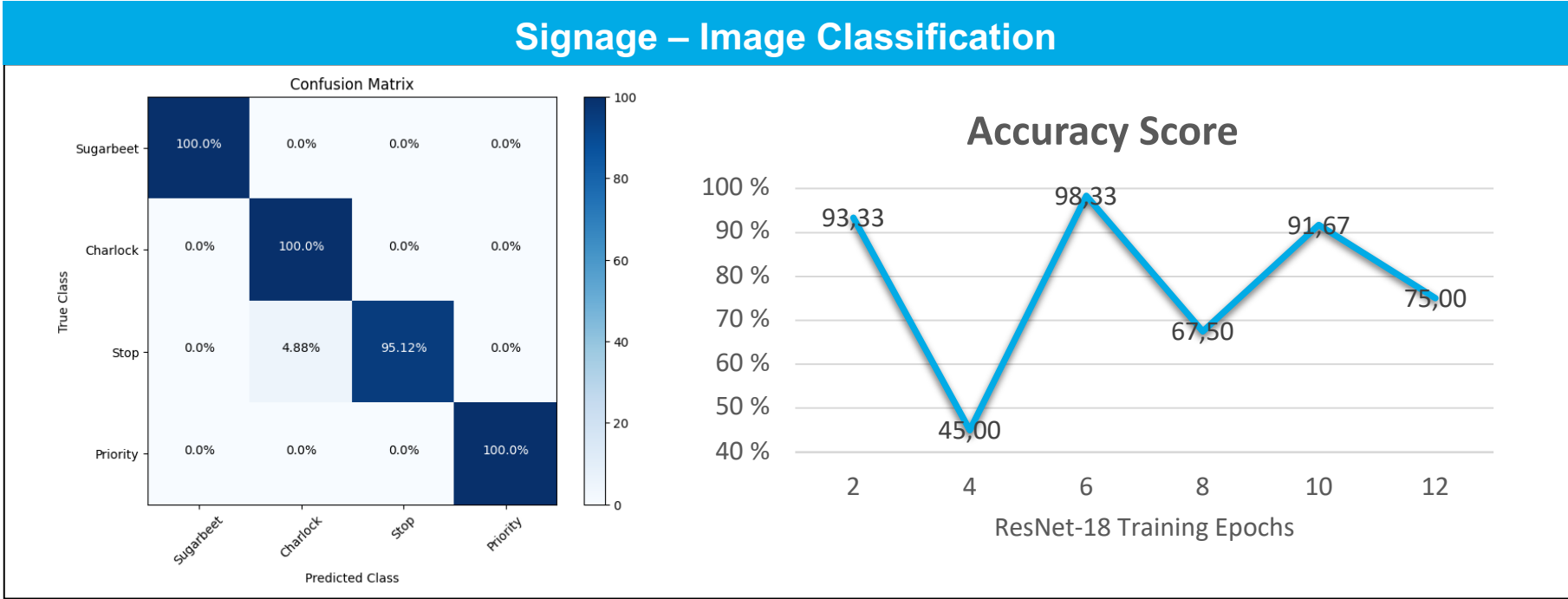
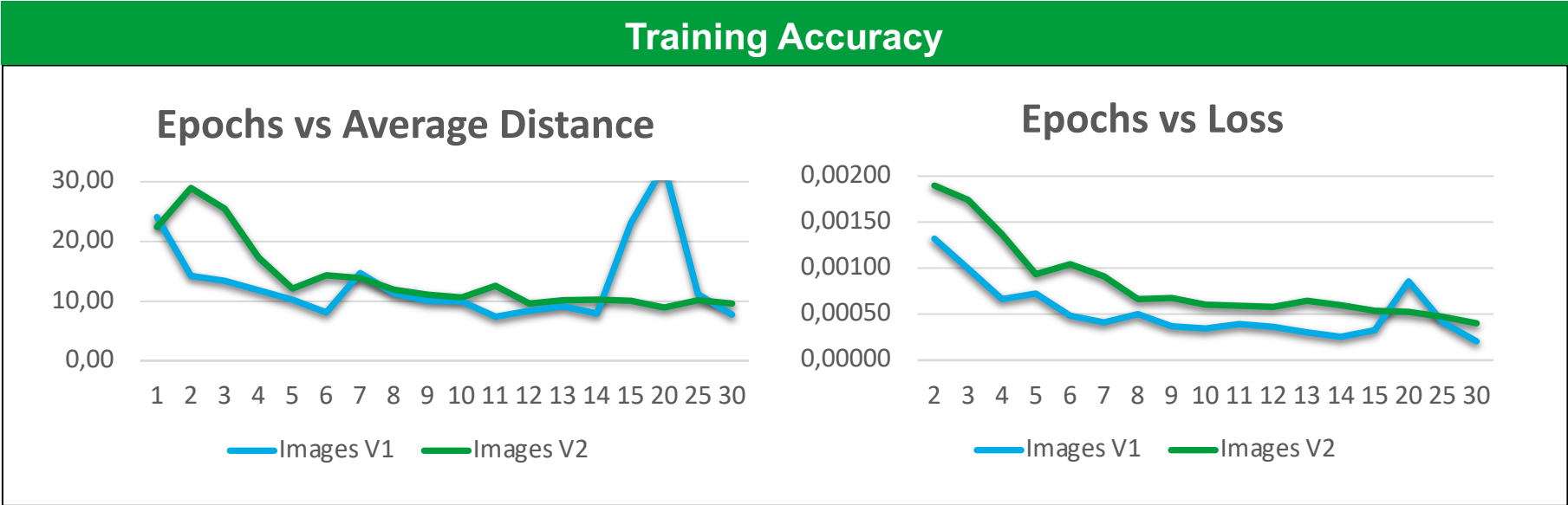
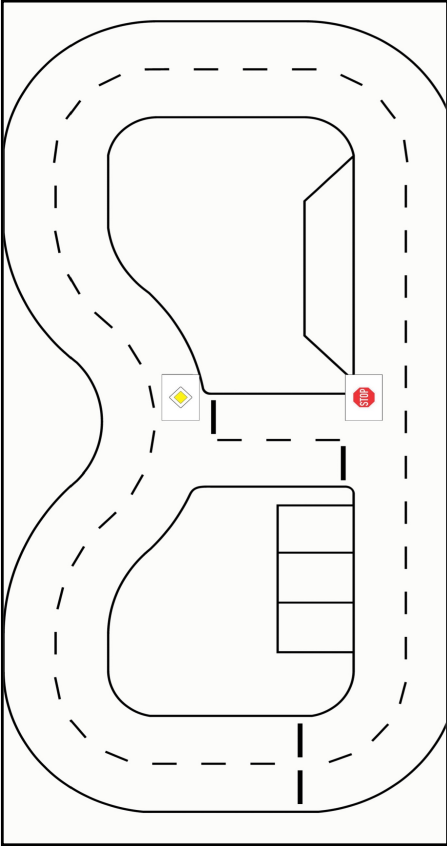
Active Structure Diagram

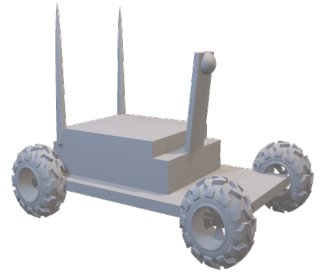


Autonomous Driving - Model Training

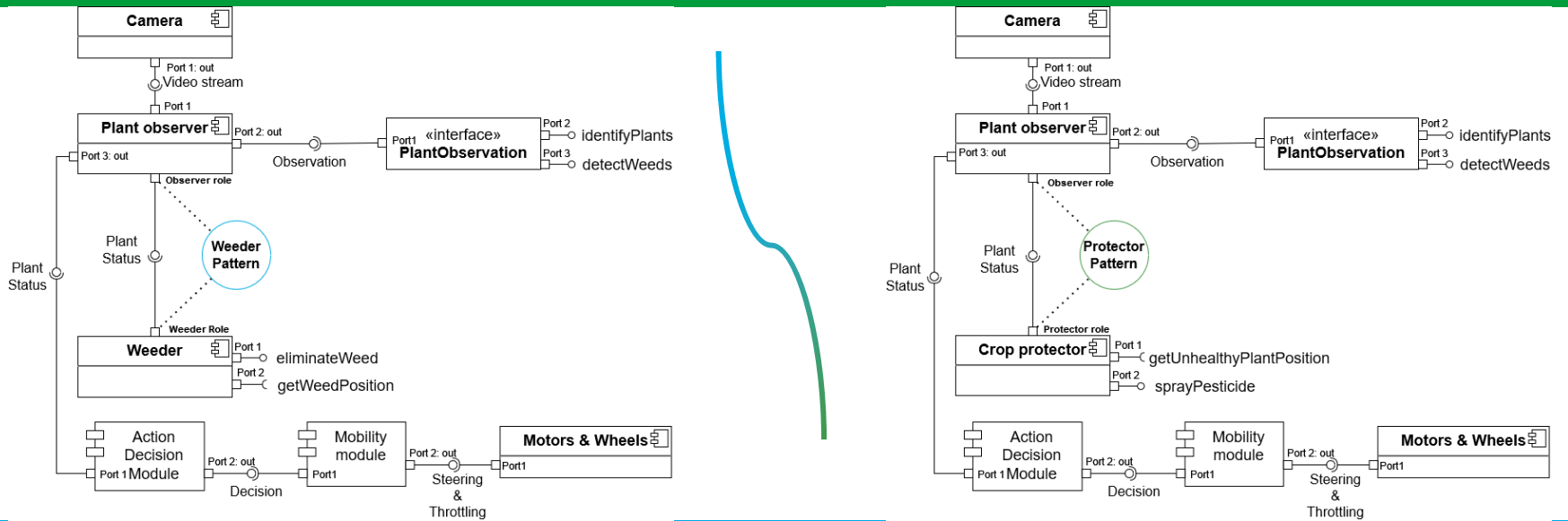


	ResNet-18	ResNet-34
Model Depth	18 layers	34 layers
Dataset size	better with small datasets	better with large datasets
Complexity of the Road	better on less detailed road	better on detailed roads
Training time	less required	more required
Computational Resources	less required	more required

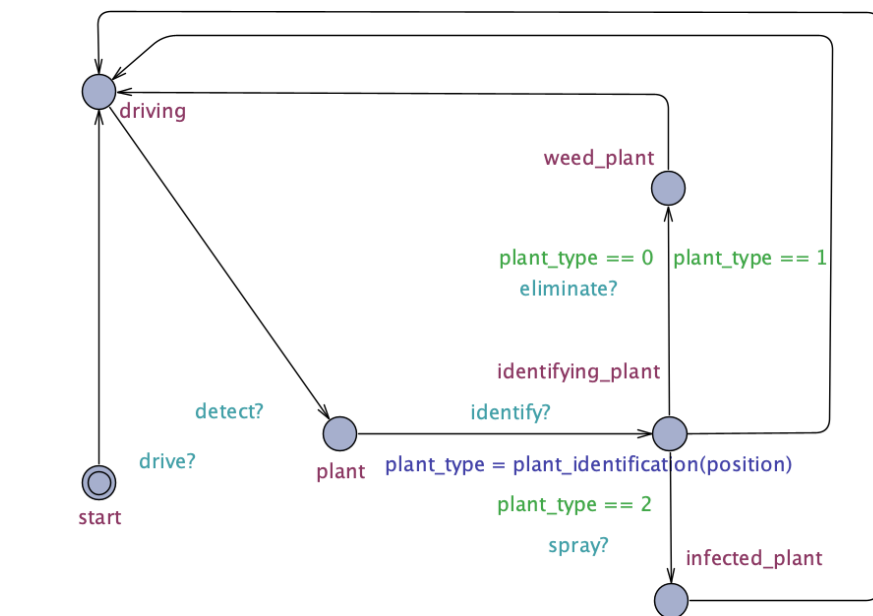




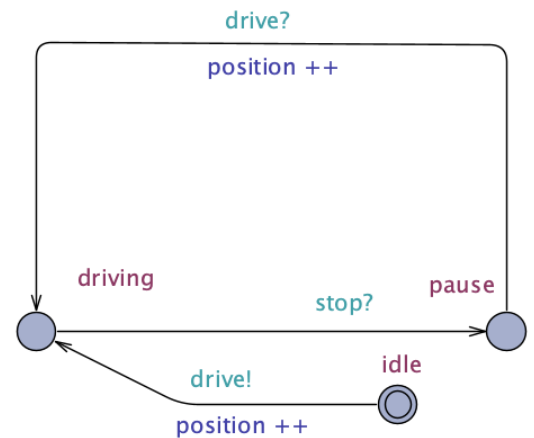
Component diagram



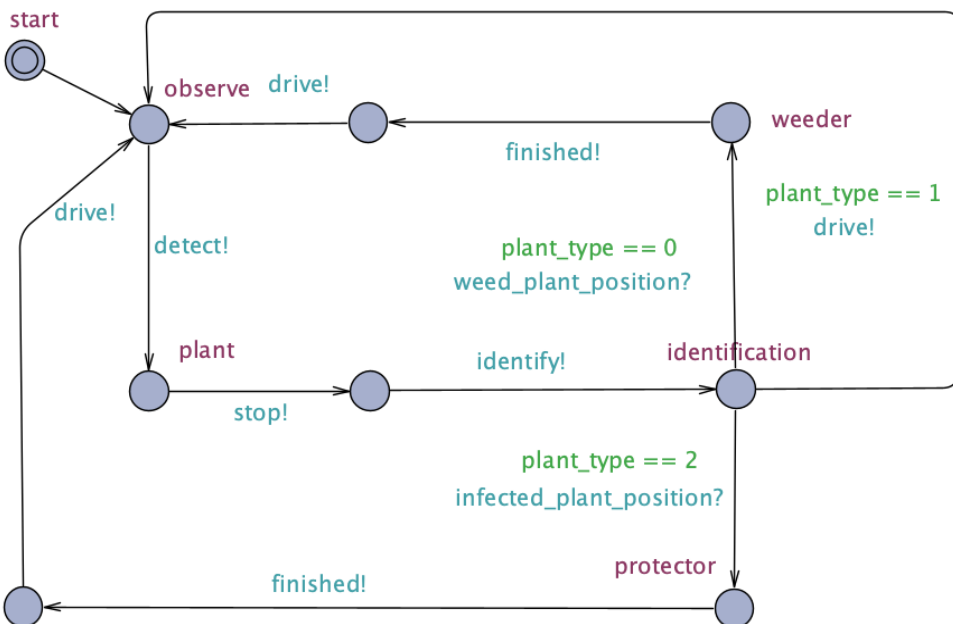
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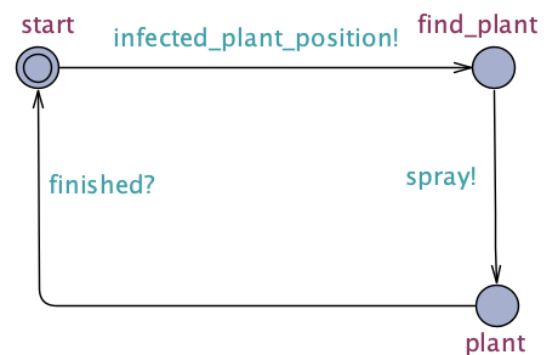
Track



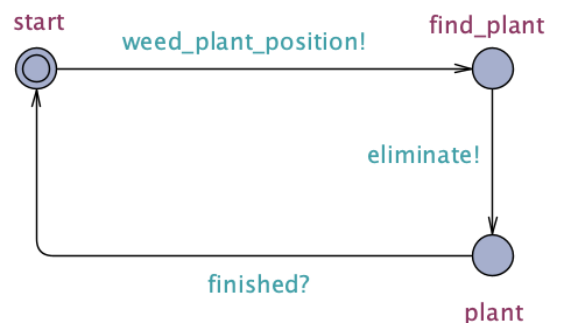
Vehicle



Observer



Protector



Weeder