Experiment 1

## Aim:

Select a problem statement relevant to AI with regards to Intelligent Agents and write the PEAS Descriptors

## Problem Statement:

A smart agriculture drone monitors and analyses crop health from the air. It collects visual and environmental data to assess conditions like soil moisture, plant health, and pest presence. It then sprays fertilizers, pesticides and irrigates as the plant needs.

## PEAS Descriptor:

Performance Measure:

* Time taken for data collection
* Time taken for irrigation
* Time taken for spraying pesticides
* Increase in yield
* Increase in crop quality
* Decrease in fertilizer/pesticide use

Environment:

* Farmland
* Crops
* Weather conditions
* Obstacles (e.g., trees, power lines)

Actuators:

* Propellers for flight
* Spray nozzles
* Turning mechanisms

Sensors:

* Cameras
* Position sensors
* Elevation sensors
* Moisture sensors
* Temperature sensors

| Task Environment | Smart Agriculture Drone |
| --- | --- |
| Observable | Partially observable - The roots and plant health are not observable. |
| Deterministic | Stochastic - The weather and insects also affect the next state. |
| Episodic | Sequential - The plant must not be overwatered, so the agent needs to consider previous actions too. |
| Static | Dynamic - The weather is constantly changing. |
| Discrete | Continuous - The plant grows continuously and the weather also changes. |
| Agents | Single - The drone is the only agent. |