

Experiment: 2

Aim: Give PEAS descriptor and identify properties of task environment and type of agent for given problems

Objective: To make students understand what is intelligent agent and how to design it.

Description :

PEAS description

Artificial intelligence is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence. Artificial intelligence is the search for a way to map intelligence into mechanical hardware and enable a structure into that system to formalize thought. No formal definition, as yet, is available for as to what artificial intelligence actually is.

There are numerous definitions of what artificial intelligence is. We end up with four possible goals:

1. Systems that think like humans (focus on reasoning and human framework)
2. Systems that think rationally (focus on reasoning and a general concept of intelligence)
3. Systems that act like humans (focus on behaviour and human framework)
4. Systems that act rationally (focus on behaviour and a general concept of intelligence)

Artificial intelligence has successfully been used in a wide range of fields including medical diagnosis, stock trading, robot control, law, scientific discovery, video games, toys, and Web search engines.

Performance Measure

Specified by outside observer or evaluator

Applied (consistently) to (one or more) IAs in given environment

Environment

Reachable states

“Things that can happen” “Where the agent can go” To be distinguished (TBD) from: observable states

Actuators

What can be performed

Limited by physical factors *and* self-knowledge

Sensors

What can be observed

Subject to error: measurement, sampling, post processing

Example:

Solved example for PEAS

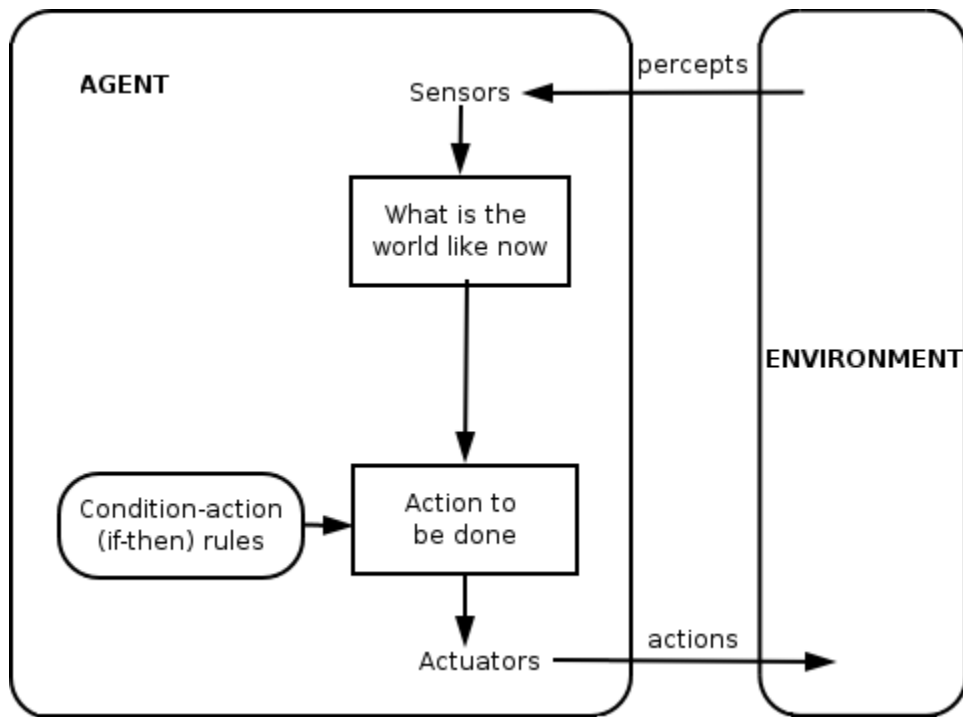
System	Performance Measure	Environment	Actuators	Sensors
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Factory Floor Scheduling	Manufacturing enterprise integration, supply chain management, manufacturing planning, scheduling and execution control, materials handling and inventory management	Factory, Factory Equipment, Website, Suppliers, Customers, shippers	Display to user, Fill in demand form, Schedule resources, Count materials	Wireless communication, generic interface interconnections , manufacturing control architecture, Web pages
Image Analysis	Correct Image Categorization	Web pages, png, jpeg	Display Categorization of Scene	Color Pixels Array
Mail delivery Robot	speed, multi media attachment, accuracy, integrity, sharing, failure detection	Website	Network, display of mail	Keyboard
Web Crawler Soft Port	Number of pages analyzed per second, Accurate results	World Wide Web	Network, Display of results, Webpages,	Keyboard

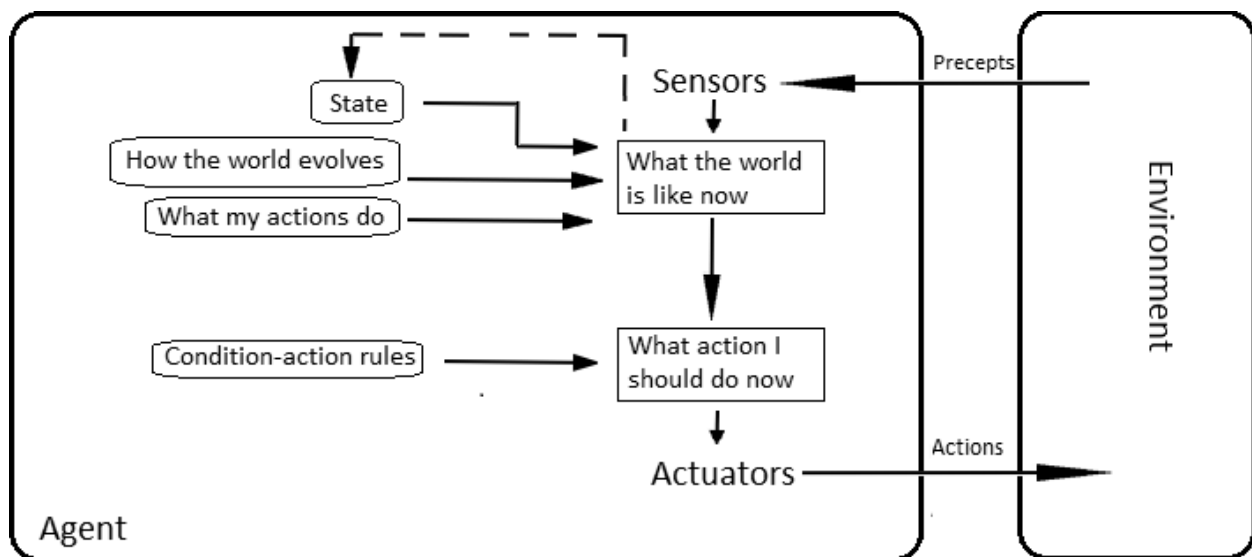
Solved example for Determine environment Characteristics:

System	Observable	Deterministic / Stochastic	Episodic / Sequential	Static/ Dynamic	Discrete/ Continuous	Agents
Image Analysis	Fully	Deterministic	Episodic	Semi	Continuous	Single
Factory Floor Scheduling	Partial	Stochastic	Sequential	Dynamic	Continuous	Single
Mail Delivery Robot	Fully	Deterministic	Episodic	Semi	Continuous	Single
Web Crawler Soft Port	Fully	Stochastic	Sequential	Dynamic	Continuous	Single/Multi

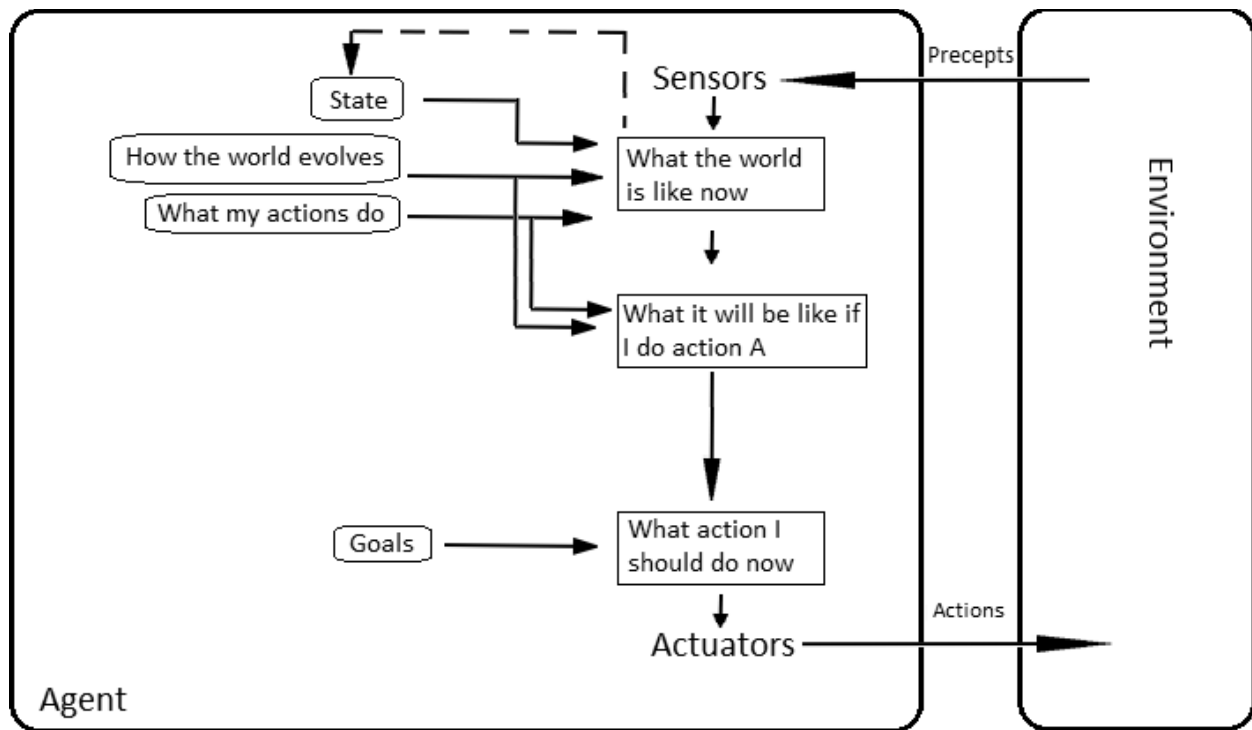
SIMPLE REFLEX AGENT



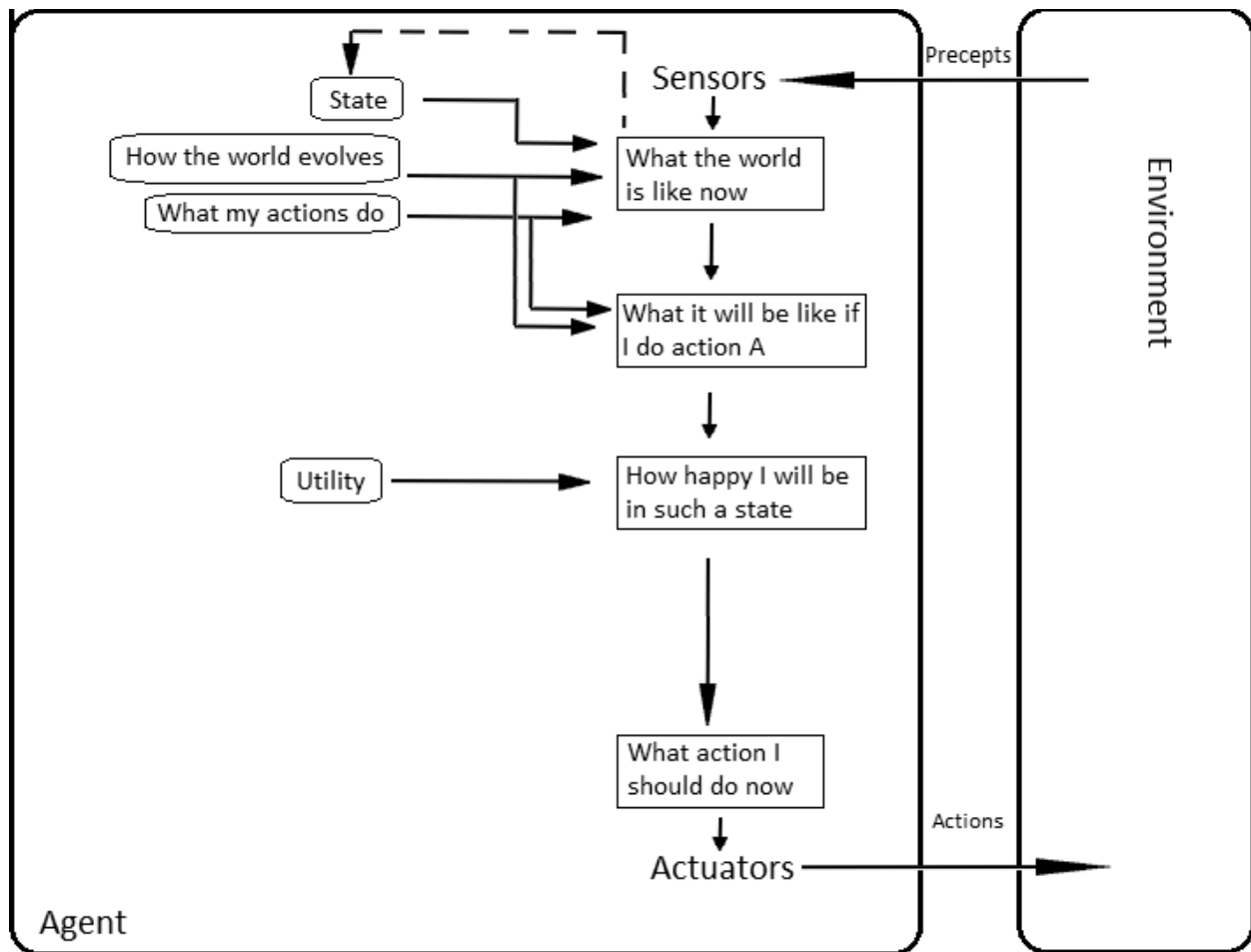
MODEL BASED REFLEX AGENT



GOAL BASED AGENT



UTILITY BASED AGENT



LEARNING AGENT

