K.G.C.E.
Karjat - Raigad

Tutorial NO:-01

Page No. :
Date :

KGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCEKGCE

Name :- Darsham Sanjay Jadhav

Roll No :- 23

Batch :- I-1

Sem :- VII / I.T

Subject :- ISLAB

class :- B.E / I.T

DOP	DOC	Sign	Marks

Tutorial No :- 01

Page No. :
Date :

Tutorial 1 :- Design of Intelligent Agent

Aim :- To understand the concept of Agent Abstraction by studying definition of Rational Agent, environment, Task environment Descriptors, environment types.

Theory :- An Artificial intelligent (AI) systems is composed of an agent and its environment The Agents act in their environment. An agent is anything that can perceive its environment through sensor acts upon that environment through effectors.

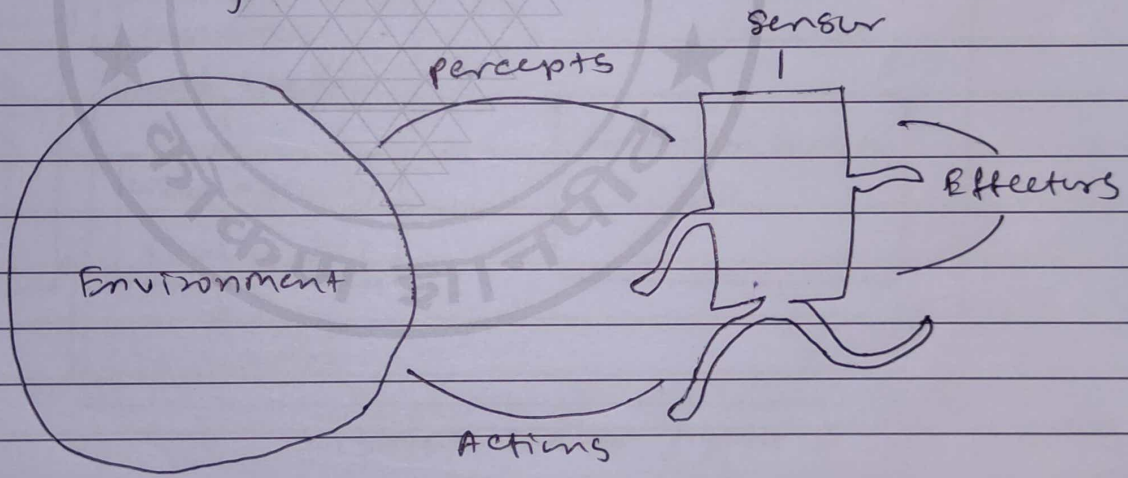


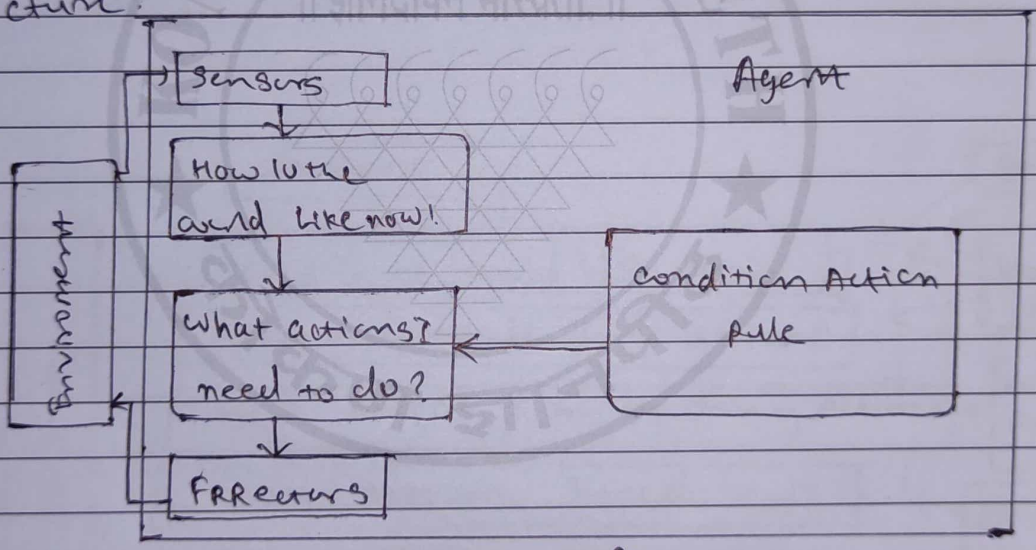
Fig :- AI agent with Environment

agent in particular can be :-
Human agent has Sensory organs such as eyes, ears, Nose, tongue and skine parallel to the Sensors, and other organs such as hands, legs. Mouth for effectors.

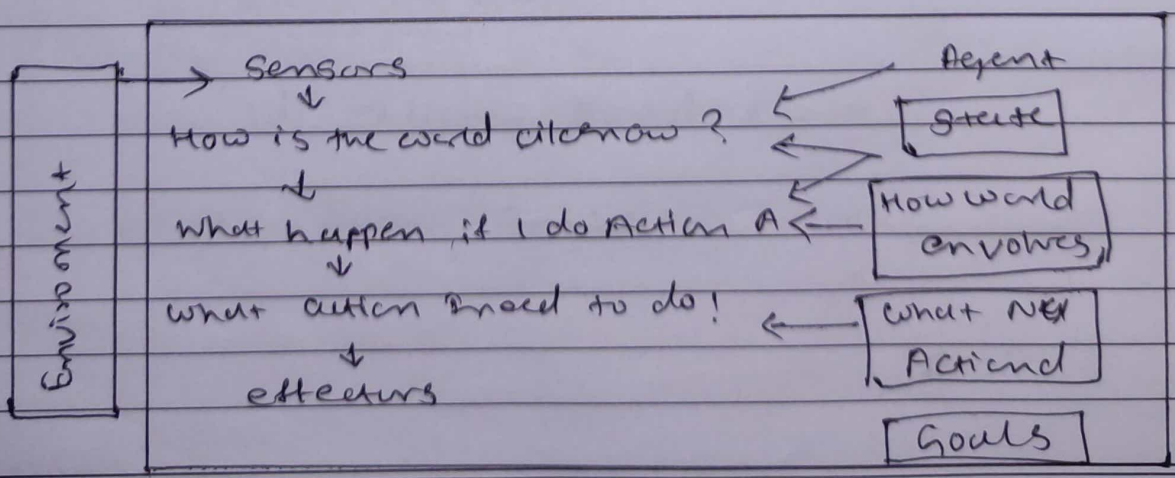
Robotic agent replace cameras and infrared range finder for the sensors and various motors and actesaturs for effectors.

Software agent has encoded bit strings as its programs and actions

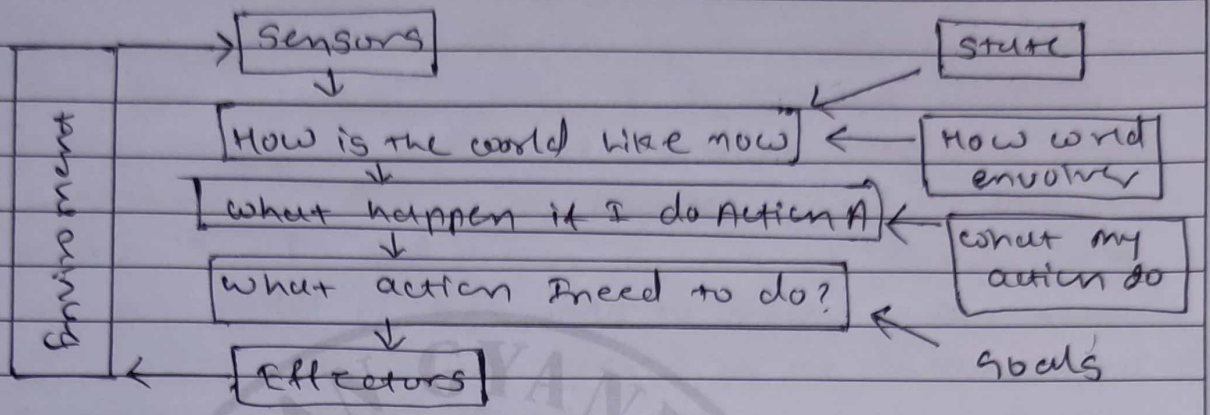
Agent structure can be viewed as a combination of Agent architecture and Agent program fig2 shows the important types of Agent architecture.



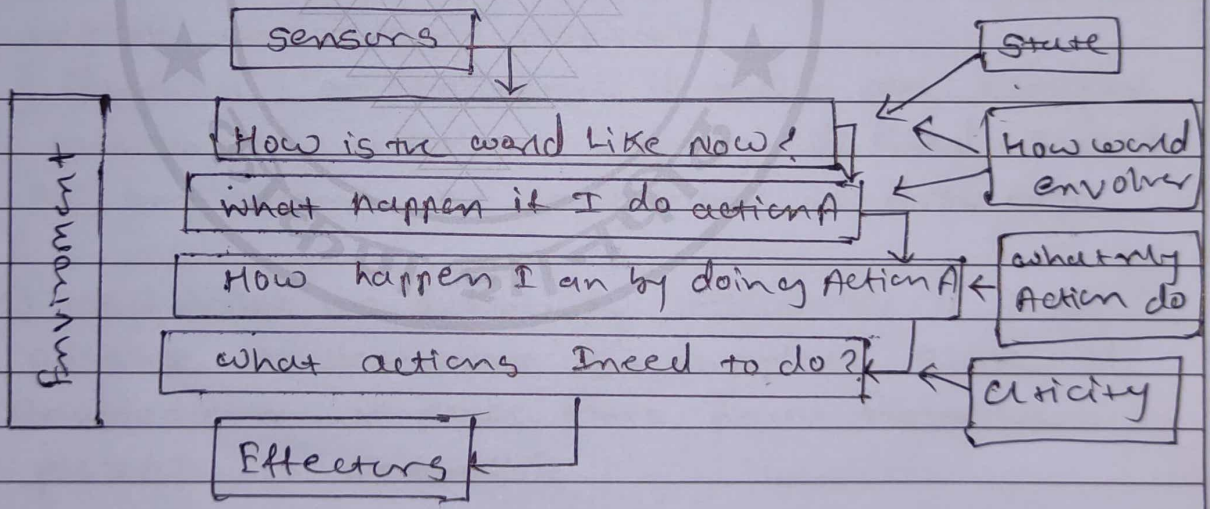
(a) Simple Reflex Agent



(b) Model Based Reflex Agent



(c) Goal Based Agent



(d) Criticity Based Agent

Fig 2 :- Agent Architecture Types.

As seen in fig 2a, simple Reflex agents choose actions only based on the current percept only They are rational only if a correct decision made only on basis of current percept Agent enviroment for such agents is fully observable model Based Reflex Agents as shown in fig 2b use a model of the world to choose actions

An agent is refered to as rational Agent A rational agent always performs right actions. where the right action means the action that causes the agent to be most successful in given percept sequence

Another important piece of information is tasks environment properties

1] Discreate or continuous if their are limited number of distinct clearly defined, states of environment, the environment is discreate

2] observable or Partically observable if it is possible to determine for complete state of Enviroment at each time point from the precepts is observable

3] static or Dynamic if the enviroment does not charge while an agent is acting then its static

4] Deterministic or Non-deterministic if the next state of the environment is completely determined by current state.

5) Single agent or multiple agents The environment may contain single agent or other agents which may be of the same or different kind as that of the agent

6) Accessible or Inaccessible if the agent's sensory apparatus can have access to the complete state of may be same.

working search internet for AI based application in following scenarios and identify who is agent for that application. finally try to classify task environment properties.

1) Autonomous Lunar Rover
2) Deep Blue chess playing computer program
3) Eliza natural language processing computer program created from 1964 to 1966 at MIT
4) Automatic Portofullio Managment
5) Sophia is a social humanoid robot developed by Hong Kong based company Hanson Robotics
6) Alphago is a social humanoid robot developed by Hong Kong based company Hanson Robotics
7) Apples virtual assistance siri
8) Endurance : A companion for Dementia patients
9) Cosper :- Helping insurances Get through the night
10) Marvel :- Guarding the Galaxy with comic-Basic crossovers
11) Automated cross word solver.

Resources The a above diagrams as taken from online tutorial available at tutorials points on topic AI - Agents and Environments.