AI Lab Final

CSE 3208

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PEAS

1.1 PEAS stands for a **P**erformance measure, **E**nvironment, **A**ctuator, **S**ensor.

I. **Performance:** Performance measure is the unit to define the success of an agent.

II. **Environment**: Environment is the surrounding of an agent at every instant. It keeps changing with time if the agent is set in motion. There are 5 major types of environments:

- Fully Observable & Partially Observable
- Episodic & Sequential
- Static & Dynamic
- Discrete & Continuous
- Deterministic & Stochasti

III. **Actuator**: An actuator is a part of the agent that delivers the output of action to the environment.

IV. **Sensor**: Sensors are the receptive parts of an agent that takes in the input for the agent.

1.2 Agent: An agent is anything that can perceive its environment through sensors and acts upon that environment through actuators. An agent program runs in cycles of:

a) Perceive
b) Think
c) Act

• Agent = Architecture + Program

Agent	Performance	Environment	Actuator	Sensor
Racing Car	Safety, time, legal drive, comfort	Roads, other cars, pedestrians, road signs	Steering, accelerator, brake, signal of red/green, horn	Camera, sonar,GPS, speedometer, odometer, accelerometer, engine sensors, keyboard
ChatBot	Related reply, fast, not reply irrelavant, identify and match query in a short time	Internet, website, query box, facebook page, messenger, google assistant	Message typer, sender mechanism	String matcher, NLP processing,
Automated AC	Fast, no effort, safety, cost, comfortable	Office, house, seminar hall	Shutter motor, puller and pusher motor	Human detector sensor, temparture sensor, speaker
Tic-tac-toe computer player	Input individually one after another, not input twice in a block, fast, accurate	3x3 matrix box, two types of input cross or zero	Typer, selecter, matcher for straight line of same input	Human input location sensor, game condition tracker as win/lose/draw

Racing Car : There are a car and 4 buttons -

- Run
- Red Light
- Right
- Left

The car is moving by Run when there are not obstacles and if the robot see the red light it will brake the car and the speed will be 0 km/h. The car move to right if it see any obstacles in the left side and move to left if it see obstacles in right side of the road.

The car will moving if we not inform red light and stop at the end of the screen (road).

Chat Bot: It is a simple messenger where we ask many question and the robot reply as it understand the query / strings.

Automated AC: The AC will on automatically if any human agent enter the room. The AC temparature will decrease if the weather temparature will increase. If the agent leave the room the AC will off instantly.

TicTacToe : This is a game of 3x3 blocks where need two agent. Here one is human agent and other is robot agent. If the human input in a block then the robot input to a new block. If human all input can be identify as a straight lined input he/she will be win. On the other hand, if it is done by robot, the human agent will lose otherwise it will be draw.