

Artificial Minds in Macro And Micro Economics In The Field of Warehouse Supply Management

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Abstract- To Compete in the Global Market and Networked economy the Warehouses should rely on Supply Chain Management for proper functioning. Today we are living a paradox where a majority of Warehouses failing in Supply Chain Management due to dependence created by Humans limitations in the field of Management and Monitoring of the Warehouse. We dream of Independent Warehouses where Monitoring and Management is taken care by Artificial Minds. Hence we visualize this dream of progress of Warehouse Supply chain management in Indian Industries. Significant research is to create an innovative and profitable Macro and Micro Economic model by conserving Energy by selecting the less distant robot to the workstation in the Warehouses of our Country. We proposed an Artificial Mind Model for Macro and Micro Economics in Supply Chain Management of Warehouses. As Model proposes the Artificial Minds involved in Planning, Learning from Natural Language processing and Decision making on the Supply Chain.

Keywords- Artificial Minds, Macro and Micro Economics, Supply Chain Management, SWI-prolog.

I. INTRODUCTION

Artificial Minds is a simulated intelligence in machines, where they are capable to think like human and Mimic the way a person acts based on the external factors. Warehousing is an integral part of Supply Chain Management which is involved in the storing and packing of goods in certain location where by monitoring for quality. The Macro and Microeconomics is a study of Economics in the field of individual or a company or as a global entity. As we come across the concepts like Artificial Mind, Supply Chain Management and Macro and Micro Economics we can use all these technologies under one roof that is Warehouse. By doing all the above technologies the modern Warehouse Supply Chain Management starts working 24x7 working, High Quality, Energy Conservation and standards in outcome. Which intern helps in developing the World's growing supply requirement in all goods.

Currently in traditional warehouse without Artificial Minds the human is involved in above supply chain of the goods. Due to which lot of time and money is waste which means it is not economical good. By having this as basic model called Artificial Intelligence model for macro and microeconomics.

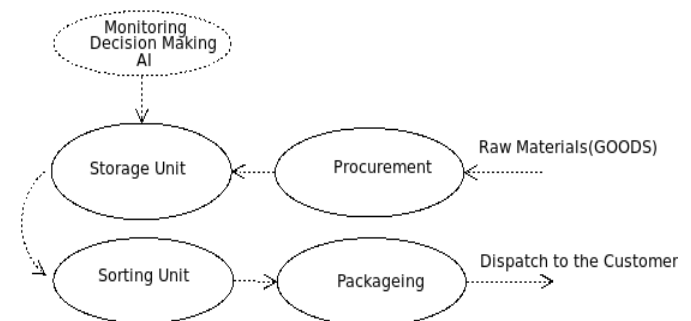


Figure 1. Warehouse Supply Chain Management using AI

II. SYSTEM BLOCK DIAGRAM

Fig 2 gives clear picture of the architectural view for Artificial Minds operation in Supply Chain Management of Warehouses. The Design involves in capturing the event from the events like Temperature, Humidity, Carbon Monoxide and Light It also monitor the Work assignment for the robots or Artificial Minds. Depends on the Input events the Artificial Minds which are implemented in Smart Warehouse System takes the Decision on those events and actuates the cooler or Humidity or Automatic Light or Assignment work for less Distance robot or sorting the Goods.

Smart Warehouse Artificial Minds is designed such a way that it can monitor itself and have a control over respective Artificial Minds which are in the network. Thus the Proposed Model helps in Conservation of Energy Directly as well as indirectly by making the System Automatic.

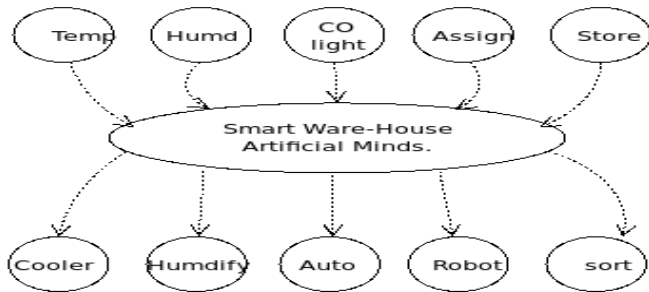


Figure 2. System Block diagram for AI controlled Smart Warehouse System

III. SYSTEM DESIGN

System Communication need to their in the closed network like Warehouse. To achieve this each Artificial Minds and Robots are supported with wired or Wireless Communication protocols like Zigbee or 6Lowpan or WIFI or LAN. Artificial Minds have ability to monitor and control the System with the help of the Logical and Analytics model. Also Robots are made such a way it haves ability to do work of automatically using the intelligence of Robots and having communication in warehouse.

The Block Diagram for the systems in Warehouse contents of Artificial Mind, Logical and Analytics and Robots where they communicate through the Wired or Wireless Connection.

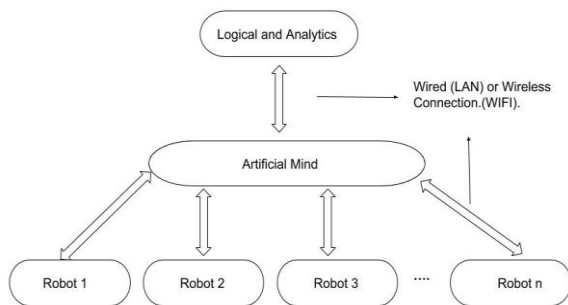


Figure 3: Communication of robots and Artificial Minds

IV. SOFTWARE APPROACH

As prolog is a best programming language for implementing the Artificial Mind Concepts, To get Assigned with the particular job the Decision Making Algorithm is proposed.

The flowchart proposed is as shown in Figure 4, In the flow Chart we need to go through the following steps as shown above,

- First start the stimulation with calling function where it should provide certain options to take action.
- Depends on the input taken by the Artificial Minds the actuations happen as mention in the figure 4.

The Main Application of the Proposed Model is to provide two important functions like,

- Decision making on the External Factors like Increase in Temperature, Increase in Humidity, Increase in Carbon Monoxide, and Decrease in Light Intensity.
- Decision Making on Assigning Job for the Robotics Model to Achieve the Energy Conservation in Macro and Micro Economic Models.

Decision Making on External Factor:

Decision making of the Actuation is possible when getting the values of external events like temperature, Humidity, carbon monoxide and light value. Steps followed to make the decision making in Artificial Minds are,

- Artificial Minds takes Temperature, Humidity, Carbon Monoxide, Light Intensity of the Warehouse.
- Threshold value is taken from the scientific research laboratory.
- Artificial Minds Make Compare with the Threshold value.
- Decision is made depends on the value is less than or greater than the threshold value.
- For less Intensity Light Automatic, Turn On the Light of the Warehouse.
- For High Temperature, Turn On the Cooler of the Warehouse.
- For High Humidity, Turn On the Humidifier of the Warehouse.
- For High Carbon Monoxide, Level Turn On the Fans of the Warehouse.

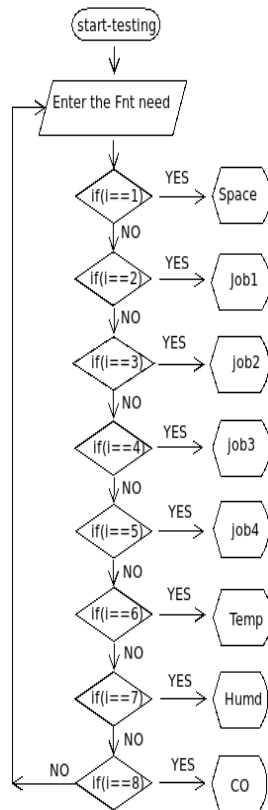


Figure 4: Flow chart of AI based Warehousing Monitoring System

Decision Making on Assigning Job:

Application of the system is to assign a Job to the nearest robot to the Workstation by having the mind to conserve Energy. To find the nearest path we follow the following steps like,

- Get the Coordinates of the WorkStation and Particular Robots in the Warehouse.
- By Getting the Coordinates and using the Pythagorean Theorem on those Coordinates we can get distance between workstation and Robots.
- By Getting the Distance the Artificial Minds takes the Decision to assign Job to the particular robot, which as lesser distance between workstation and Robots.

To achieve this first we need to understand the Pythagorean Theorem so we can find the distance between two Workstation and Robots.

Pythagorean Theorem:

The longest side of a right angled triangle is called as hypotenuse. As theorem states hypotenuse length is equal to

square root of sum of the square of opposite side length and adjacent side length.

i.e $C = \text{sqrt}(A*A + B*B)$,

Where C is Hypotenuse and A & B are the other two side of the right angled triangle.

In Proposed model we use same Concepts of Pythagorean Theorem by getting coordinates from the each particular robot and workstation to measure distance.

- In figure 5 explained Two Robots in an Coordinate systems having X1 and Y1 for Robot 1 and X2 and Y2 for Robot 2.

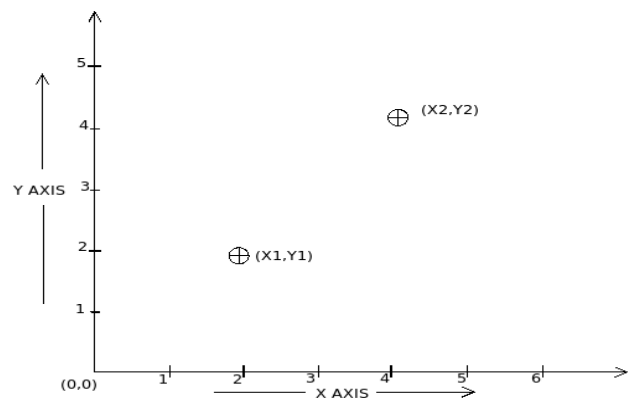


Figure 5: Two Robots in XY co-ordinates.

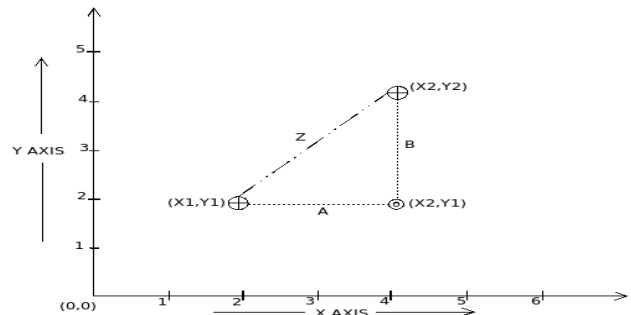


Figure 6 Distance between Robots is its hypotenuse.

- As Pythagorean Theorem says if we have two points in co-ordinates distance between them s given by square of difference between x axis and y axis and the result need to be root squared.
- $Z = \text{sqrt}((A*A)+(B*B))$ where,

Z is the Distance between two points placed in a coordinate system.

A is equal to difference between X2-X1 or X1-X2.

B is equal to difference between Y2-Y1 or Y1-Y2.

The Model with Simulated environment of warehouse connects is shown in figure below where they represents Workstation and Robots,

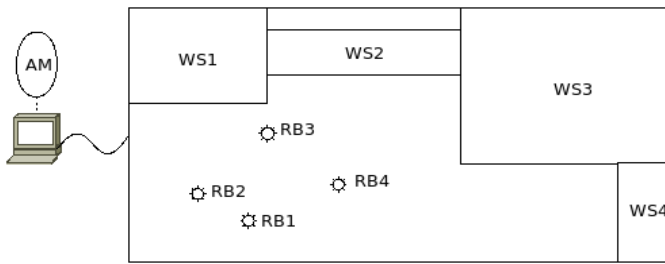


Figure 7: AI Model in Warehouse showing 4 robots and 4 Workstation with different works.

- WS1, WS2, WS3 and WS4 are the WorkStation contains Work related with sorting, transporting and other works.
- RB1, RB2, RB3 and RB4 are the Robot having ability to do all kind of work.
- The Artificial Minds have ability to take Decision on which the Robot to assign.
- For to get the coordinates each workstation and robot communicate to artificial Minds.
- The Artificial Minds and Robots coordinate 24X7 to monitor and co-ordinates between systems.
- To analyze consider the WS1 have work to be achieved in the Warehouse, where as to send the request to Artificial Minds and Respective coordinates of robots and WS1 is send to the Artificial Minds.

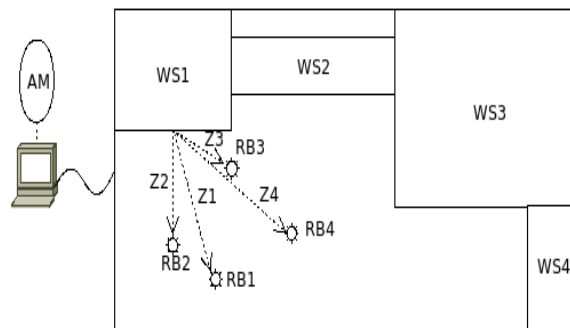


Figure 8: Calculate of Distance between robots and Workstation

- Z1 is the Distance of RB1 from WS1.
- Z2 is the Distance of RB2 from WS1.
- Z3 is the Distance of RB3 from WS1.
- Z4 is the Distance of RB4 from WS1.

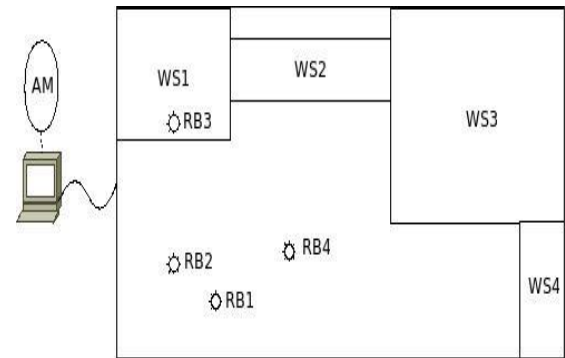


Figure 9 Assign for Robots 3 for Work at workstation1 (Energy Conservation).

- Artificial Minds takes decision upon comparing each distance and Assign work to RB3 (Robot 3).
- Thus Achieve the Micro Economic model by conserving Energy in the robots by assigning nearest robot to the Work.

V. CONCLUSION

Artificial Minds in Warehouse has a strong influence in Macro and Micro Economics of the Industries. The Proposed model gives Conservation of Energy Resources; Automation to the Warehouse depends on the critical events like temperature, humidity thus helping the warehouse storage and thus improves productivity and efficiency. Artificial Minds is the Future for universe, Thus they act as serving node to the human kind so he can live happy and prosperous life. So, it is highly important that Artificial Minds is applied in Warehouse as it would not only benefit the business people but also assure the storage of goods of farming. Thus helps in Micro and Macro analysis of the Global Economy.

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