



International Journal of Recent Development in Engineering and Technology

Website: www.ijrdet.com (ISSN 2347 - 6435 (Online) Volume 2, Issue 3, March 2014)

# Ontology for Demining using Multi-Agent Programming-The Robotic Path Provider

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**Abstract**– Ontology is the process of automatic analysing by demining technique and looking for occurrences of a particular class of object or event and for relationship among software that perceives its environment through its sensors, and acts upon an environment with effectors. The Internet presents a huge amount of useful information which is usually formatted for its users, which makes it difficult to extract relevant data from various sources. Although many approaches for data extraction from Web pages have been developed, there has been limited effort to compare such tools. Unfortunately, in only a few cases can the results generated by distinct tools be directly compared since the addressed extraction tasks are different. Our project explains the robust, flexible Demining systems that automatically provides a way to reach particular destination from source through emitting U-V radiation and events. The Contribution of the project are : provide appropriate to way to reach particular destination in the building. In this paper we propose a non-humanoid robot for modelling agent organization and illustrate an operation for reaching desired destination.

**Keywords**–Ontology, Sensors, Demining, Non-Humanoid.

## I. INTRODUCTION

The tremendous growth and popularity of the any reputed institutions, hospitals, research centers are in need of providing the way to reach particular building in entire area for new comers. Even some unknown will deliver the way, employees such as security members tells the way to reach the particular building in entire area. This leads to make the new comer to reach desired building but it will not sure that new comer will reach desired building. This paper aims to present an ontology model of software engineering to solve these problem and to overcome by using this non-humanoid provides a way by uv radiation to reach the destination area for newcomers in the institutions.

The knowledge based environment provides the entire data for the building by storing the data as capturing images. The Non-Humanoid stores these captured information. To automate the translation of stored data which is captured images ,the user gives destination point. It takes source point where the new comer stands and destination will be selected from captured images.

The agent who do the action in the environment. The agent collects knowledge based environment which provides

- i. The States,
- ii. The Actuators,
- iii. Sensors,
- iv. Environment

### THE STATES

The particular situation of the environment while performing the action are called States. There will be an initial state and final state. In this paper ,the initial state is the source point where new comer stands. The final state is the goal state. The final state is the state where is new comer's desired location.

### ACTUATORS

This is used to perceiving the input from environment by using input hardware. In this paper, the actuators is defined data of capturing images of the entire building.

### SENSORS

This is used to generate output or the next state of the approach. The next state need not to be a goal state. In this, the sensors is the emitting uv-radiation and sensor placed in the desired locations.

The processing like automatic annotation and content extraction out of images can be taken as a information to start the process. Due to this, the new comer can have a guarantee of reaching correct location.

In this paper, our proposal is to guide the new comers of any institution using a non humanoid by having source point where new comers stands and emits uv radiation which will be spotted lines where it stops emitting these radiation until destination is reached. Thus the new comer reach the desired location.

**Ontology**- It is the process of self analysing the problem to provides solution for the software development. The term 'Ontology' is derived from its usage in philosophy where it means the study of being or existence as well as the basic categories. Therefore, in this field, it is used to refer to what exists in a system model.

An ontology, in the area of computer science, represents the effort to formulate an exhaustive and rigorous conceptual schema within a given domain, typically a hierarchical data structure containing all the relevant elements and their relationships and rules (regulations) within the domain. An ontology, in the artificial intelligence field, is an explicit specification of a conceptualisation. In such an ontology, definitions associate the names of concepts in the universe of discourse (e.g. classes, relations, functions) with a description of what the concepts mean, and formal axioms that constrain the interpretation and well-formed use of these terms.

However, the representations are sometimes poor for certain problem domains, so more specialised schema must be created to make the information useful and for this we utilise ontology.

## II. AGENT BASED COMPUTING

Agent can be defined to be autonomous, problem solving computational entities capable of effective operation in dynamic and open environments. They are often deployed in environments in which they interact, and sometimes cooperate, with other agents (including people & software) that have possibly conflicting aims. These environments are called as multi agent systems . An agent is anything that can be viewed as recognize its environment through sensors and acting upon that environment through actuators .The agent function is an abstract mathematical description the agent program is a concrete implementation, running on the agent architecture.The agent function for an agent specifies the action taken by the agent in response to any percept sequence.

In this, the agent is Non-Humanoid robot. This viewed the entire environment using sensors and reflected through actuators. In this actuators take data as captured image of the stored data which is destination area in the project development.



**Fig.1 Structure of Non-humanoid robot.**

Non-Humanoid robot is placed near the source which received data which is destination area where the operator enters. This can viewed the entire environment using actuators which precepts the inputs using camera and stored in memory.

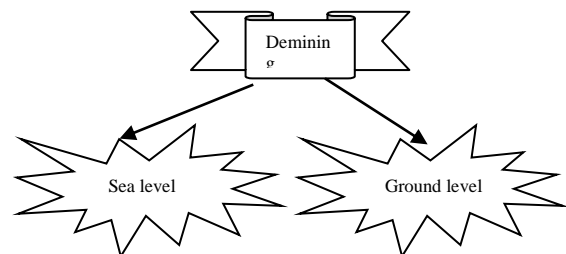
It takes the image which is the newcomer to reach as destination one.From the source point,their robot emits uv radiation through radiators to destination like point denote way.

### *Demining*

Demining is the process of analysing the environment in the sea level and ground level.Demining is the process of finding out what users are looking for the particular matter on the sea level and ground level.

In sea level, detecting mines under sea and for ground level detecting particular location,these plays a major role in working.

Demining is the process of using graph theory to analyse the node and connection structure of an area.. According to the type of data, structure of mining can be divided into two kinds: 1. Extracting destination or goal from ontology knowledge base environment. 2. Mining the data structure: analysis of the tree-like structure which is heuristic search strategies and A\* search to find optimal path to reach goal.



**Fig. 2 Structure of Demining**

## III. TASK ANALYSIS AND ALGORITHMIC APPROACHES

In this proposal, the task will be analysed on the stored data and searching algorithm is applied. After analysing these data, further operation will be performed. In this the operation will be emission of radiation from radiators but the radiation emission will continues until we reach the destination point.

Based on PEAS description we describe our proposal,

1. PERFORMANCE defines the goal i.e to reach the destination path.
- 2.Environment which represent where the action and agent are presented.
- 3.Actuator is the Radiators which emits UV radiation.
- 4.Sensor which is uses the image sensor captured the images and stored in the database.

In this we can apply, Consistent Heuristic Search Algorithm for performing the task.

Consistent provides multitasking based scheduling the process. In this optimal solution is obtained based on this algorithm.

$h(n)$ =estimated cost of the cheapest path from node to goal node.

This gives optimal solution and least cost and avoid irrelevant facts. This will not going to consider the other location. It takes simply the retrieval images of destination as a goal node. Before proceeding it analysis the path and retrieve minimum path to reach destination which is goal state. This is entirely based on Ontology Software development.

#### IV. HARDWARE REQUIREMENTS

##### i. UV Emitter -Actuators



**Fig. 3 UV emitter**

In Fig.3 which is fitted in our robot helps to emits the UV radiation in dotted like structure. It just available for few seconds and proceeds the way to reach goal. The radiation helps to guide the new comer in the institution, hospitals, offices. It is cheap and efficient emitted one is required for this operation.

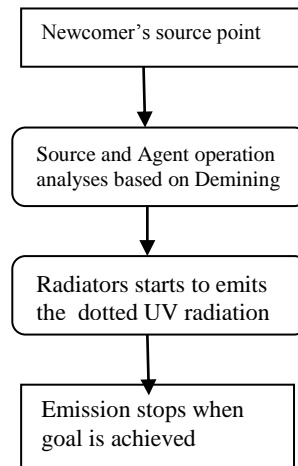
##### ii. Sensors

Sensors – Retrieving and detecting the images which stored in robot memory. It is like an object where it fixed in main area of the entire area.

iii. Computer System providing source such as the images stored in memory.

#### V. WORKING OF ROBOTIC PATH PROVIDER

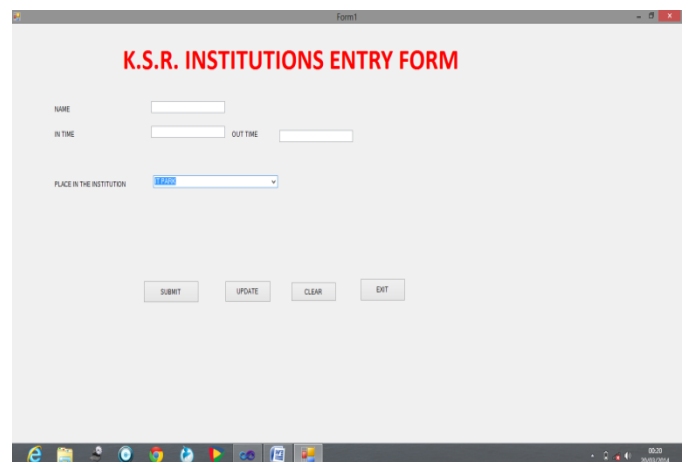
In this Fig.4 shows the step by step procedure for achieving solution which is minimal and optimal Solution. The Robot is based on ontology concept hence self analysing technique is applied.



**Fig. 3 using Multi Agent Programming**

#### VI. INPUT SOURCE TO THE ROBOT

The input source are entered by the data operator who registered data entry of the new comers. From the data, an attributes which specifies particular place can be taken as input given to the robot. The robot analysing the given data and match with the images which it correctly predicts that image taken as the new comer's destination. In this proposal, Microsoft Visual Basic is used.

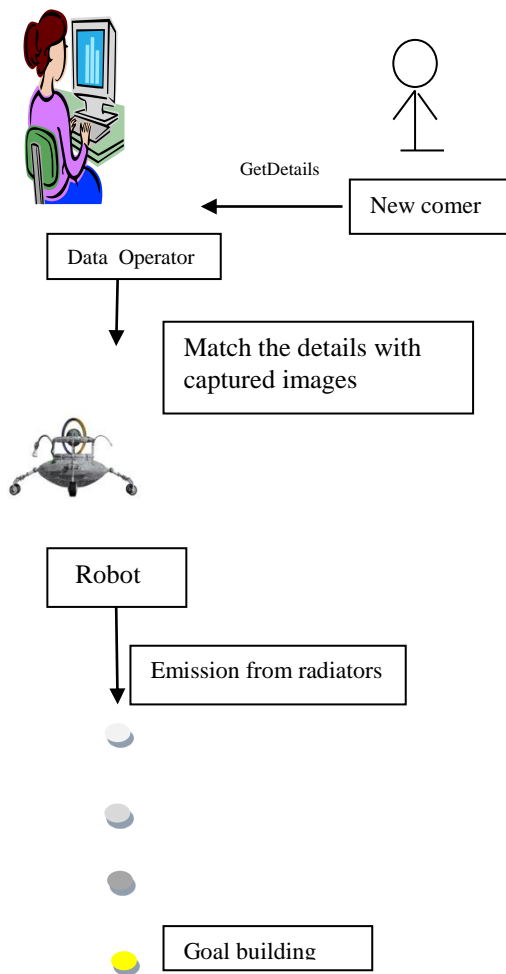


In this place combo box provides list of option which are particular point of building in the area. The operator choose the new comer's desired place as goal place which sends to the robot. The robot taken this input and matches with the stored image and fix the destination point. Then radiates starts its working of emission to the destination place.

**VII. WORKING OF THE ROBOT PATH PROVIDER**

The working of the robot path provider is given in the diagrammatic format for easy understanding of concept. Analysing of data on the ground level is the main approach.

The diagram is given below:



**Fig. 4 Working Of The Robotic Path Provider**

Databased used in the System which is source linked with the robot. Then matching images title with entered area to reach. Then emission occurs.

**VIII. CONCLUSIONS AND FUTURE WORK**

The trend of developing highly automatic path provider systems, which saves not only the effort for programming, but also the effort for labelling. Thus, although the creation of Web services also avoided in this project. It provides another way for data exchange and information integration, it may not be the best choice since the involvement of programmer is unavoidable. On the other hand, Robot become essential and efficient one in our life. In this paper, we formalized an idea as shown in Fig 3. The approach gives a way to the model for demining concept as future work. The detecting process under sea level which may black box of plane which is essential one.

**REFERENCES**

- [1] M. R. Adler, A. B. Davis, R. Weihmayer, and R. W. Worrest, "Conflict resolution strategies for non-hierarchical distributed agents," In L. Gasser and M. Huhns, editors, Distributed Artificial Intelligence Volume II, pp 139-162, 1989.
- [2] J. R. Galliers, "A Theoretical Framework for Computer Models of Cooperative Dialogue," Acknowledging Multi-Agent Conflict. PhD thesis, Open University, UK, 1988.
- [3] Hsu, C.-N. and Dung, M., "Generating finite-state transducers for semi-structured data extraction from the web," Journal of Information Systems 23(8): 521-538, 1998.
- [4] C. Cheong and M. Winikoff. Hermes, "Designing goal-oriented agent interactions," In Proceedings of the 6th International Workshop on Agent-Oriented Software Engineering (AOSE-2005), July 2005.
- [5] S. Kumar, M.J. Huber and P.R. Cohen, "Representing and Executing protocols as joint actions," In Proceedings of the First International Joint Conference on Autonomous Agents and Multi-Agent Systems, pages 543-550, Bologna, Italy, 15-19 July 2002.
- [6] R.H. Bordini, M. Dastani, J. Dix and A.E.F. Seghrouchni, "Multi-Agent Programming: Languages, Platforms and Applications," Springer, 2005.
- [7] S. Handschuh, S. Staab, and F. Ciravegna. 2002. "S-CREAM - Semi-automatic Creation of Metadata," In Proceedings of the 13th International Conference on Knowledge Engineering and Knowledge Management, EKAW02. Springer Verlag.
- [8] Knoblock, A. et al., ed., 1998. Proc. 1998 Workshop on AI and Information Integration, Menlo Park, California.: AAAI Press. Simoes, G., Galhardas, H., & Coheur, L. (2009). "Information extraction tasks: a survey," (INESC ID technical report No. 37/2009). Lisbon, Portugal.
- [9] B. Pollak and W. Gatterbauer. "Creating permanent test sets of web pages for information extraction research," In Proceedings of 33rd SOFSEM: Theory and Practice of Computer Science, vol. II, pp. 103-115, Jan. 2007