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Designing A Prototype for the Multisensory System in the Generative AI with Dynamics on A Multi Layer Perception (MLP) of A Real-Time Uncertainty Protocol for Humanoid Robotic Control System

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Abstract

In this research an extensive description of the experimental AI perception in the neural network with layer in nodes in the perception has been provided. The GenAI manipulator has been designed, built, and tested in the Robotic Automation Laboratory. It is a crucial problem which is overcome in this present research by introducing the palletization in the correction factor which is explained in this Comprehensive multilayer perception in fuzzy expert robotic system using nonlinear regression. Dynamic fitting movement into the humanoid robot's microcontroller through the methodology of concurrency, which was achieved after several experiments and evidenced, thus enhancing communication from Gen AI with a dynamic to decision makers by making recommendations more credible, understandable, compelling and persuasive. Here Transactions were executed simultaneously from a wide array of input sources. Each of these transactions had the potential to interfere with other running transactions within the datasets, so, the approach handled with a good practice was isolated with the transactions from each other within the multi-sensory environment. A way was established for collating the transaction data so that the data was executed with aggregated reports are explained in detail in this scenario which has automatic prediction AI.

Keywords: MLP, GENAI, AI, NLC dynamic fit, NW, NS, SF, HF, PA

Predictive Analysis in AI

One of the crucial problems faced in humanoid robots is mitigation planning arising due to anticipation during movement. As human beings has lot of data in their brain thus anticipating which one to do resulting in the existing work to get into potential impact thereby falling down due to lag in data concurrency where In thereby avoiding the robot from difference in time factor for the same distance movement due to sensor error lags. It is a crucial problem which is overcome in this present research by introducing the correction factor derived from the error of movement into the humanoid robot's microcontroller through the error and thereby a concurrency is achieved after several experiments and evidenced through the implementation of big data analytics with dedicated palletizing for robotic system.

Introduction

To complete the description of the experimental platform, a model for the X- axis drive dynamics has been established. The model is based on a least-square identification technique. Roswtf produces a report containing both warnings and errors based on the checks it performed. In general, warnings are something that seems odd, but may be just fine. Errors are known problems that should probably be addressed, if problems are experienced. Advanced Roswtf plug-in are evaluated from roswtf plug-in API, where the roadmap roswtf will continue to evolve to try and diagnose more complex problems that may arise in large ROS systems.For online issues, roswtf examines the state of the current graph and tries to find any potential issues. These issues might be unresponsive nodes, issuing connections between nodes, or potential machine-configuration that is the way in the design.

1.0 Implementation

1.1 Preamble

In this research, a description of the experimental set-up is provided. This description is followed by an overview of the open-architecture control platform used in this application. The integration of the electromechanical experimental robot within the control system, as well as the implementation of the proposed policy, is then addressed. The system is implemented in an Encapsulated Logical Device Architecture, which provides an object- oriented approach to efficient and coherent treatment of information and control signals for multisensory robotics control system development Budenske [1]. Once the overall architecture of the system is established, the architecture is implemented in the control system. In order to generate good simulation results, an adequate model of the system is necessary. In the current work, the system is empirically identified based on a parametric model Elliott [2]. The identification procedure, as well as a brief overview of necessary theoretical background, is also provided Budenske Gini [3].

1.2 Experimental Platform

The proposed policies are aimed at implementation on industrial automation and robotic systems. In order to simplify the problem Erol, N.A., Altintas, Y [5] at hand and limit the number of variables, as well as their effects Henderson [6] , a simple robotic device was designed and built in the Industrial Automation Laboratory for test purposes.

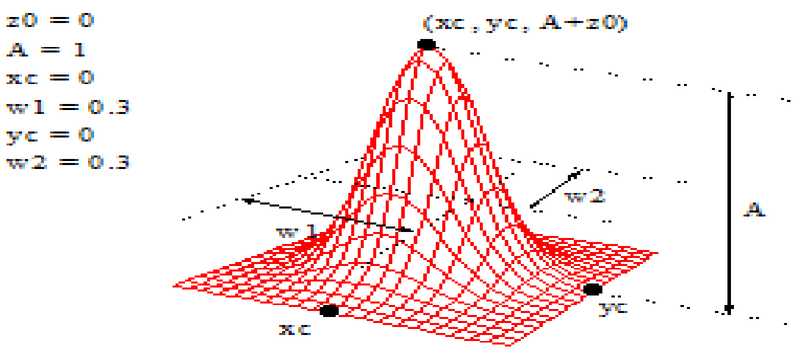

Fig.1. Non linear Curve fit in MLP

An entity (object, concept, and feature) is encoded using a neuron called an entity neuron, when an entity is used in several structures several neurons may exist to represent it in these difficult situations.

The values of all the active entity neurons constituted the state of the system, which conceptualize to the working neural schemas in cognitive that can be directly accessed, this means we arrive at the entity neurons has many instances and correlated with intercepts with residual vs. independent plot for neural plots as depicted in Figure.1

1.3 Significant Statement

A detailed Investigation on the intelligent semantic system were done and implemented in the neural schema of ARHR in a semantic fashion using neural networks. Stochastic cognitive neural schema with the sigmoid curves for neural network active nodes was predicted. Calculations for the first derivative of the sigmoid function are carried out and the results for nonlinear functions were studied and validated. In order to implement neural schema cognitive hypothesis were framed and tested. Values for error calibrations and correction factor were obtained. Much cognitive behaviour which is not well explained by current symbolic models are analysed in detail and implemented using learning and knowledge system. Validation and formulation of neural schema were conceptualized.

2. Stochastic Study

The concurrency of data received through different movements of robot due to lag in the concurrency of data received through sensing with various sensors, the robots movement due to errors makes the distance and time factors to vary , hence it is desired to make them concurrency thereby avoiding the robot from difference in time factor for the particular distance movement, due to sensor error lags. It is a crucial problem which is overcome in this present research by introducing the palletization in the correction factor which is explained in this Comprehensive palletizing in fuzzy expert robotic system using nonlinear regression.

3. Problem Statement

Dynamic fitting movement into the humanoid robot's microcontroller through the methodology of concurrency which was achieved after several experiments and evidenced, thus enhancing communication from modellers to decision makers by making recommendations more credible, understandable, compelling and persuasive.Here Transactions were executed simultaneously from a wide array of input sources. Each of these transactions had the potential to interfere with other running transactions within the datasets, so, the approach handled with a good practice was isolated with the transactions from each other within the multi sensory environment. A way was established for collating the transaction data so that the data was executed with aggregated reports are explained in detail in this chapter

4. Analysis

One of the crucial problems faced in humanoid robots is mitigation planning arising due to anticipation during movement. As human beings has lot of data in their brain thus anticipating which one to do resulting in the existing work to get into potential impact thereby falling down due to lag in data concurrency, thereby avoiding the robot from difference in time factor for the same distance movement due to sensor error lags. It is a crucial problem which is overcome in this present research by introducing the correction factor derived from the error of movement into the humanoid robot's microcontroller through the error and thereby a concurrency is achieved after several experiments and evidenced through the implementation of big data analytics with dedicated palletizing for robotic system. One should, however, keep in mind that if the robot is evaluated by running paths it is only optimal for the path used during the optimization.

5. Inspired Basic Research

Thus minimization of potential impact thereby mitigating by experimental evidence through implementation of correction factor in the time-elapsed-distance algorithm for the anticipation error during different movements in the ramda humanoid robot emphasizing in sensory concurrency has been achieved through various sensor readings and sensitivity analysis by optimal path used during the optimization of analytics using big data analytics with dedicated palletizing and a comprehensive palletizing in fuzzy expert robotic system were carried out.The data of deviation in measurement that is accounted for in the calibration process where it is either added the correction factor to the measured value and incorporated in the sensor data.

Table.1 Surface fit of the W1,W2 and W3Axis Drive Parameters

WEIGHTS			$\sum w_i$	$\sum x_i$
W1	W2	W3	NEURAL WEIGHTS	NEURAL SCHEMAS
.65	.46	.12	1.23	1
.55	.54	.45	1.54	2
.65	.64	.56	1.85	3
.75	.69	.59	2.03	4
.86	.76	.67	2.29	5
.66	.90	.81	2.37	6
.57	.78	.92	2.27	7
.46	.57	.67	1.7	8
.36	.42	.43	1.21	9
.25	.12	.21	0.58	10

From the table it is evident that the correction factor is obtained after detailed analysis in both walking and robot. This palletization factor is calculated and given for the experimental values with concurrency in big data analytics for Xx Xy were made as a reference for analytical studies for various sensors from Yx Yy, Zx Zy. $roswtf will check the current package or stack for problems. The important process is that roswtf performs those checks based on the directory it is plotted, For example, if it is run in the navigation stack, it will perform its file system checks based on files in the navigation stack and its dependencies, thereby in the checking a launch file running on roswtf command on a roslaunch file. In such cases it will check the given launch file for any potential issues. Roswtf accepts command-line options in all new files in C Turtle, run roswr rules against all packages in ROS_PACKAGE_PATH (here not plugins) and disable roswtf plugins offline new in Diamondback.

6. Methodology

specifications, this analogy sensor provides a repeatability of ±1% of the full scale setting and approximately 5% hysteresis.

This sensor measures distance via the elapsed time of flight of the ultrasonic wave and, therefore, requires a reflective surface perpendicular to its axis to function properly Table 2. This surface is provided by adding an aluminium reflector on the end-effectors trolley, see Figure 2. A summary of the Y-axis mechanical drive, actuator and sensor parameters are provided. An overhead camera is also used in the system Figure 2.

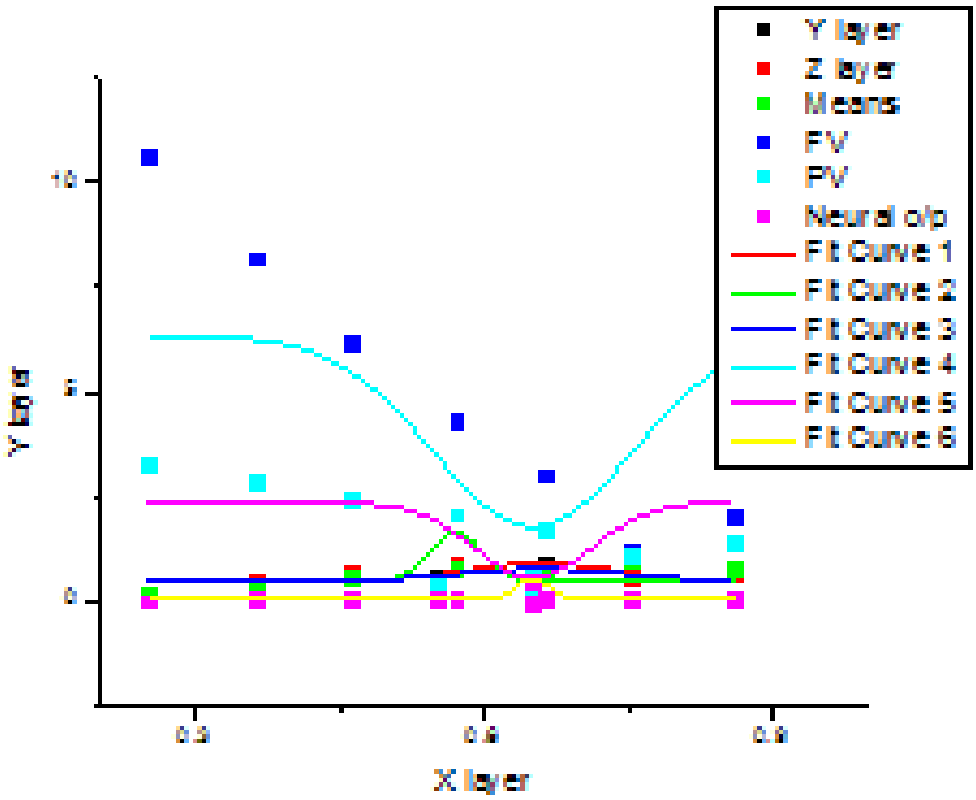

Fig 2. The Sensitivity analysis of MLP data points in AI

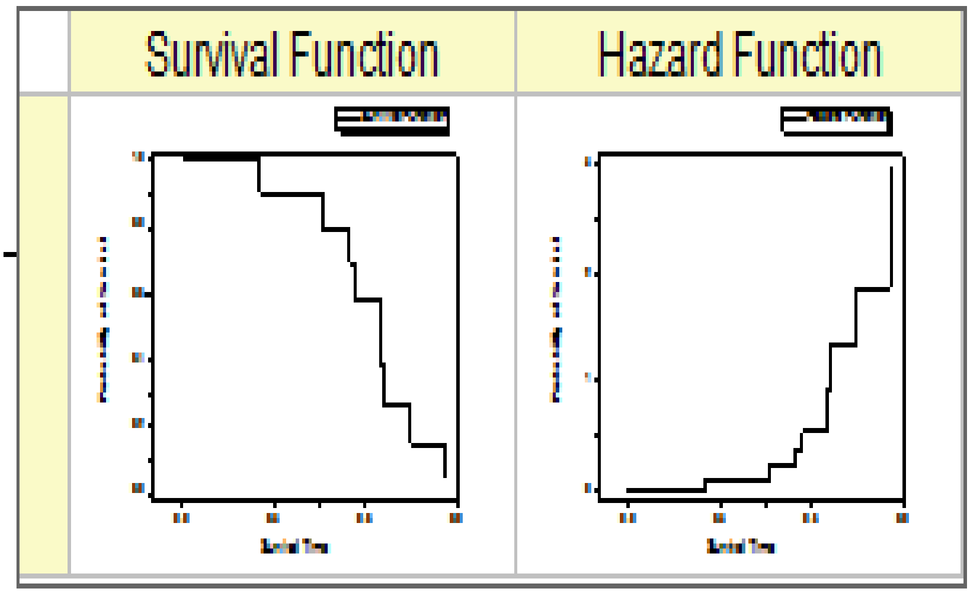

Fig.3 . Prediction Analysis of data

See Figure 3 in order to provide information about the environment in which the system is operating (i.e., heteroceptive sensing), but it can also be used to provide redundant data about the system state. In this case, redundant data is generated for the end- effectors position.

7. Experimental Validation

A detailed mechanism adopted for the development and execution of complex behaviours namely neural schema was studied. Experimental techniques and the research methodologies used in the fuzzy inference rules algorithm for nonlinear regression dynamic fitting were studied. Fuzzifying the back propagation learning algorithm characterizing the neural network with the explanation with neurons was studied.

The calculation of steepness parameters and the output of the neuron are determined. Fuzzy behaviour based robotic control system with neuromorphism with the proposed back propagation learning algorithm was studied. The analysis of control logic in the design of the humanoid robotic fuzzy logic controller was done with the linguistic states. Fuzzy membership functions on neural weights and neural schema were plotted. Enumerations of fitness by GA were designed by using training process.Robotic system toolbox is used to communicate with a ROS path interactively which is explored in the robot to visualize sensor data and communication with the experimental hardware Alpha Ramda Humanoid Robot hereafter will be mentioned as ARHR and software for developing program with the platform flowbotics studio version 3.0.7 for robotics application

8. Mechanism Adopted - Neural Schema

Neural schema is a mechanism to enable the development and execution of complex behaviours in autonomous robots involving adaptation and learning using sophisticated software architectures. Behaviour based systems arrange robot controllers into a collection of task achieving behavioural modules that when properly enumerated can produce robust results that are repeatable and reliable.The result is a mechanism that uses its own experience and abilities to learn about its world by creating new nodes and links that embody new knowledge that effect that environment.Thus minimization of potential impact thereby mitigating by experimental evidence through implementation of correction factor for the anticipation error during different movements in the ramda humanoid robot were emphasized.

9. Sensitivity Validation

Sensory concurrency has been achieved through various sensor readings and sensitivity analyses by optimal path used during the optimization of analytics using big data analytics were studied.

The aggregated reports with validated neural weights and neural schemas with the data of deviation in measured, in the calibration process the measured value were derived and incorporated in the sensor data

10. Implementation of Open-Architect

A detailed experimental procedure adopted in this investigation is presented in this chapter. In addition, the theoretical formulations involved in the representation of the degrees of association by membership grades in a fuzzy relation and the non monotonism fuzzy relations and the properties of relation with corresponding approximation using fuzzification characteristics are also discussed in this chapter. Humanoid learning of robots is frequently used as an individual, parameter to describe how a robot is perceived by a human. However, such a simplification is often not sufficiently given in the complexity and multi dimensionality of robot learning. Therefore, this research must be seen as a variable influenced by a network of parameter fields. The first goal is to introduce such a network which systematically characterizes all relevant aspects of humanoid learning. The network is subdivided into static aspects of learning mechanisms and dynamic aspects of behaviour.

11. Results

The second goal of this research is to propose a methodology to quantize the impact of single or multiple parameters out of these fields on perceived Humanoid Learning. Prior to quantization, the minimal perceivable difference, that is the threshold of perception is determined for the parameters of interest experimentally. Thereafter, these parameters are modified in whole-numbers multiple of the threshold of perception to investigate their influence on perceived humanoid learning. This methodology was on parameter field movement as well as on the parameter distance and movements. Results revealed that the perceived humanoid learning is more sensitive to changes in sequencing than to changes in distance. The movement of the manipulation is a systematic exploration of the proposed network of humanoid learning in order to determine and optimization of humanoid robots. It is difficult to locate humanoid robots in unknown environment which has to be quantized. Hence sensor based navigation system for humanoid robots are required as one of an essential function. Here it describes vision-based navigation system for humanoid robots, which has following features.

To recognize floor regions from a view of vision of a humanoid robot in unknown environment, we utilized existing technique called plane segment finder, which is able to extract arbitrary planner surface regions from dept image in locomotion. 2) Path planning for humanoid robot requires capable of modelling a robot as a 3D cylinder model, convex hull model, rigid model and so on, according to a situation such as a robot carries a large object or a robot opens its arms. Finally it is shown an ALPHA RAMDA humanoid robot with enhanced stereo vision system for navigation task and a result of path planning using generated local map through stereo vision system which uses real images as an input.

Inspired by neuroscientific findings, the design of socially acceptable behaviours is becoming one major issue for the development of robots that are able to interact with humans in unconstrained environments. In Particular, social behaviours such as gazing, mutual positioning or gesturing allow robot to initiate and maintain an information exchange with humans after quantization. The study of mutual positioning between a small humanoid robot and a person through psychometric experiments and design of a parametric model of the parameters seen based on the results of the experimental investigations. Based on the arrived results it is significant that evaluation for different directions in a different way.

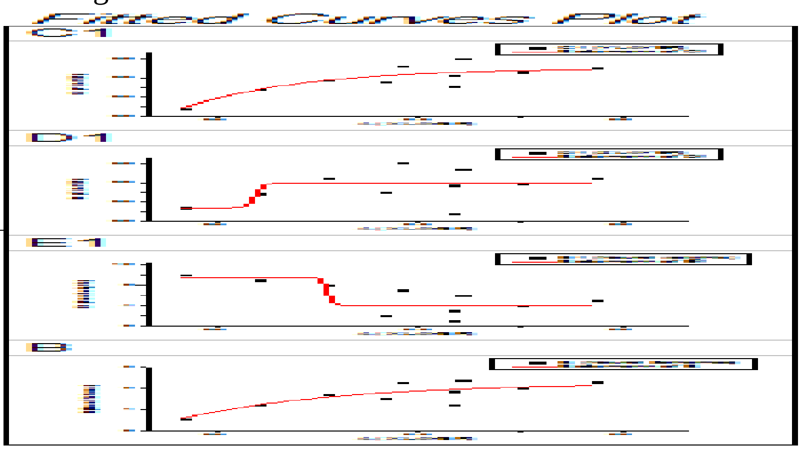

Fig. 4 X-Axis Sigmoid Curves

12. Discussion

Therefore, this package provides the flexibility and processing capacities required to implement the current application Palletized experimental values in fuzzy expert robotic system shell is shown in Figure 8.2 is the relationships between inputs and outputs of the optimal simplification, fixing the model inputs that have no effect on the output, by identifying and removing redundant parts of the model is proved by using for Non monotone relations .

Here in Figure 8.2 the palletization value A is max at 9.5(YxYy) and min at 3 with respect to 8 and -3 at Zx and Zy (C1 of fuzzy data) respectively shows there is a stack placed in non monotone relations while assigning values to the variable as shown in Figure 8.2

Enhancing communication from modellers to decision makers by making recommendations more credible, understandable, compelling or persuasive.

13. Observative Outcome

It is observed in Table 8.2 that for a maximum Neural Weight of 2.37 the corresponding Neural Schema was 6 which are an average value obtained for 10 Neural Schemas which proved that for a maximum neural weight the neural schema is consistent and perfect without any data maximum or minimum values with the parameter settings in semantics. Also validation for palletization and experimental validation for Xx, Xy, Yx, Yy and Zx, Zy as Neural Weights W1, W2, W3 were depicted in the Table 8.2

Table 4. Furthermore, to increase the flexibility of the hardware, screw terminal boards have been built to accommodate the MFIO-3B interfacing connectors in Table 4. Transparent communication between the ORTS-PC/NT application and other processes running on the same PC, or on a networked PC, is also available through the Microsoft Foundation Classes Libraries pipe classes.

NL Fit (Boltzmann) (26-11-2013 12:24:37)

⊞ *Notes*

⊞ *Input Data*

⊟ *Parameters*

		Value	Standard Error
C1	A1	-626.68072	2.72098E6
	A2	0.75027	0.25688
	x0	-0.97217	771.86008
	dx	0.17693	0.57726
D1	A1	0.21	0.27579
	A2	0.59875	0.09891
	x0	0.35852	4749.10885
	dx	0.00558	17906.92379
E1	A1	9.5	1.54118
	A2	4	0.89329
	x0	0.46394	151926.27711
	dx	0.00402	154895.73459
B	A1	-2573.60606	2.23013E7
	A2	2.26294	1.33782
	x0	-1.50148	2073.84888
	dx	0.23845	1.14412

Fig.5 .Aggregated Reports of Fit parameters applications provide a transparent communication protocol Inside of the real- time application itself, and also between the NL FIT Boltzmann.

14. Design

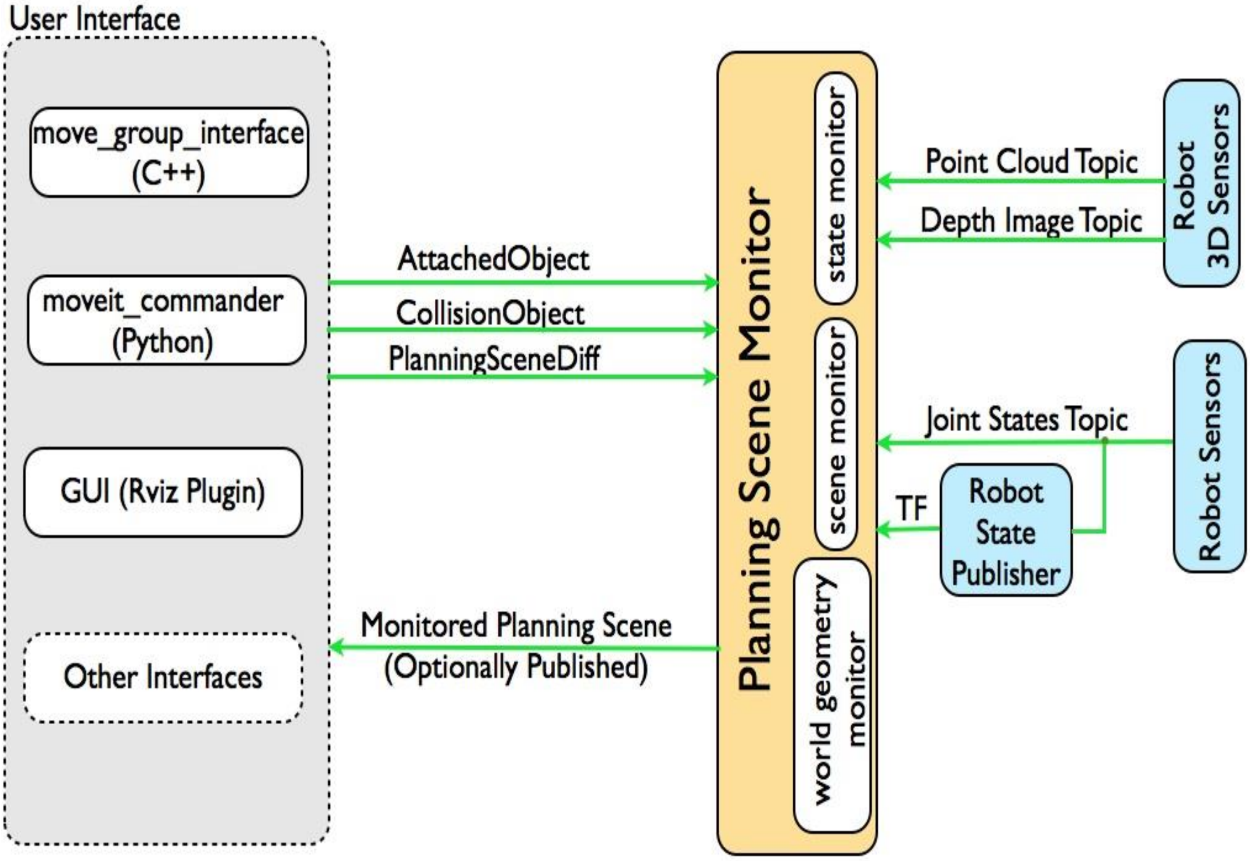

Fig.6.Prototype of AI Learning System with Architecture

15. Conclusions

Based on a model of an experimental Cartesian manipulator designed, built, and tested in the Industrial Automation Laboratory, The system architecture is designed following the MLP framework , before being implemented across multiple computing platforms. Designing a prototype for the multisensory system in the Generative AI with dynamics on a Multi Layer Perception (MLP) of a real-time uncertainty protocol for Humanoid Robotic Control System. Thus the data source point is brought closer to the predictive data and analyzed data thereby making the data patterns to recognize faster with accuracy.

16. Concurrence of Experimental results with Simulation work

Experimental Results concur with those obtained in simulation. The occurrence of a proprioceptive sensor failure is identified, leading to the sensing subsystem re- configuration and the faulty sensor data Rejection. The major contributions of this work to the field of industrial automation and robotic control Systems have been done following the research objectives stated at the beginning of this research.

The principal contributions are:

a. Development of a policy to integrate heteroceptive feedback in the position Servo-loops of robotic manipulators where this type of feedback is already available,
b. Development of a real-time uncertainty metric to enable the dynamic reconfiguration of the sensor

subsystem on sensor fault or failure occurrence.
c. Establishment of heteroceptive sensor .

17, Fault Rejection.

Implementation of the sensor integration policy for robotic manipulator servo-loop in an experimental manipulator and testing of the policy behaviour in realistic condition The Cartesian manipulator has been designed, built, and tested in the Industrial Automation Laboratory. In the current work, only the DC motor/lead screw driven X-axis is used. The electro-mechanical system is operated through an open-architecture CNC control system, the *Open Real-Time CNC Operating System* (ORTS).

Finally, to complete the description of the experimental platform, a model for the X-axis drive dynamics has been established. The model is based on a least-square identification technique. A parametric model is first established and its parameters are identified from input/output data measured on the system itself. This model of the X-axis drive dynamics is used in order to perform experiment testing of the proposed methodology and their corresponding policies.

18. Future Work

Furthermore, it would be necessary, in order to demonstrate the flexibility of the policies, to perform some testing based on another type of heteroceptive sensor, such as a 3D laser scanner. It would also be of interest to increase the number of heteroceptive, or proprioceptive, sensing sources, again to verify the behaviour of the integration and fusion schemes in such a context and the resulting overall robustness of the system in the presence of sensor fault or failure. Finally, the implementation of the policy in a real robotic work cell using a six degree of freedom robot, and the experimentation in real, pick-and-place operations would confirm the capacities of such a system and its industrial relevance.

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