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Development of knowledge base system using astrological aspects, distance measure & fuzzy-neural network for prediction on parliament election results- 2024

Arun Kumar Wadhvani

Abstract

This paper deals with the development of Knowledge Base System to Forecast about the prediction in parliament election results-2024 based on Astrological Aspects & Artificial Intelligence. The Astrological parameters are fuzzified and handled by distance measure criteria, Fuzzy rules & Neural Network criteria. The final forecasting is carried out by taking overall effects made individually from each Planet. The system has been tested & analyzed using all parliament Election held in past in India from 1951 to 2019. In this Proposed Model, the Research work deals with a distance measure, Fuzzy rules & Neural Network considering the Astrological Parameters, (Position and Ephemeris of various Planets such as सूर्य, चंद्रमा, मंगल, बुध, बृहस्पति, शुक्र, शनि, राहु, केतु और नेप्चून) to get prior information of Parliament Election Results-2024 (Number of winning seats) in India.

It is calculated on the basis of ग्रहों and नक्षत्रों की गति एवं उनके द्वारा जनता के मन में प्रेरणा जागृत करना कि किसको वोट दें, on the Day of polling, सिद्धांत पर आधारित है। The duration of polling is considered from 01.04.2024 to 15.5.2024. It is found that there is slight variation in the output of Neural Network if date of poling varies from the above duration i.e. March 2024 to May 2024.

The test results are promising and after carrying out exhaustive testing in the Astrological & Artificial Intelligence environment, the developed system can be successfully used for the forecasting about the prediction in parliament election results-2024. With this proposed model the Ruling Party will get $75.13\% \pm 2\%$ Error (due to different angle between Moon & Jupiter, error is positive & due to different angle between Moon & Rahu error is negative on the day of polling) of total Parliament seats, it means that if total seats in Parliament Election 2024 are 543, then the Ruling Party will get $407.9557 = 408 \pm \{(2\% = 2 \times 543 \div 100)\} = 408 \pm 11 = 397$ to 419 seats.

Keywords: Artificial Intelligence (AI), Machine leaning (ML), Deep Learning (DL), Astrological Aspects, Parliament Election-2024 forecasting (PEF-2024), Knowledge Base System (KBS), Ruling Party (R), Opposite Party (O), AO- All Others-(Rest Parties+ Independent), (C) Coalition

Introduction

Astrology is probably one of the oldest of sciences that has been propounded by our sages for the benefit of man-kind. However, the extent to which it has fallen out of grace (because of our own growing ignorance) can be gauged by the definition of astrology given in the chambers. Dictionary which defines astrology as "practical astronomy", now almost confined to the once-supposed art or science of the influence of the stars on human and terrestrial affairs. Therefore it would be worthwhile for us to know as to why this situation has come out. One reason is that instead of doing pure research in astrology more time is spent in casting aspersions on others. It is necessary to do research on astrology with scientific tools. Modern thinking and managers have propounded that the systems approach to analyzing situations is the best known way. Put succinctly, systems based approach means that the problem is broken up into smaller part, subject to close analysis, each part is solved individually and a total solution is given reconciling individual problems and solutions. This approach that the author opens with is definitely advantageous as much as it is a systematic method in approaching any problem. So it is no surprise that astrologers today are also taken in by the systems based approach [1-3].

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Astrology originated as a search for what is hidden in the future and is founded on the assumption that there exists a reciprocal connection between astronomical phenomena and the facts of life. There is a major difference between science and astrology. The former disavows the task of dealing with the kind of questions that is of common concern to humanity. The scientist, as a general rule, declines to take the entire universe as his province, whereas the astrologer dealing as he does with life and life-problems cannot confine his attention to any particular sphere of activity or phenomenon.

Jyoti or light is all-pervading and hence the astrologer is justified in taking the entire universe as his province. The scientist confining his researches into limited fields proffers rather general theories purporting to account for large masses of fact; but these theories can never embrace everything without exception. When a theory transcends such limited generality, we have to leave the realm of science for that of astrology. The scientist must disclaim responsibilities for problems whose tackling implies conditions with which his techniques are powerless to deal. If an anthropologist can tell us what restrictions in human conduct have obtained in this or that community at such and such a time? But if he asked what events likely to take place in the history of a country at a certain future period or what type of career, a certain statesman or politician will have, he must plead his incapacity and confess that his scientific procedures are powerless to handle such question. The high water-mark of their achievement was Jyotisha-Astronomy-cum-Astrology which exhibits the tendency to approach life-problems- political, national, economics and sociological through mathematical considerations^[4].

In this research paper an attempt has to be made to develop a model which is based on astrology & scientific methods.

The 18th Parliament Elections in India are likely to be held around 01.04.2024 to 10.5.2024. A large number of political parties are expected to join the fray but the main contestants for power will be the ruling party. If the innumerable combinations of planets listed in ancient astrological texts are examined carefully, there would be found to exist an amazing series of parallels between the regular motions of planets and the ebb and flow of physical, mental and emotional phenomena peculiar to human life and activities.

The so called discoveries of new stars and galaxies may have extended the boundaries of physical universe. But of what use are such "discoveries" if no attempts are made to understand the significance of these phenomena as applied to living beings and their problems of existence and evolution? Thanks to "progressive thinking" of some of our men of science, no serious or systematic attempts have been made in India to assess the practical importance of the ancient astrological doctrines in the field of political Astrology; though, during long studies and research it has been possible for us to demonstrate, how planetary patterns affect world affairs. The science of political Astrology is built on the demonstrable basis of facts. The human beings and political events are sensitive to rhythms of planetary movements will be found to be no more a matter of conjecture.

Astrological precepts based on the revelations or sages and fortified by experience and experiment can no longer be treated lightly or brushed aside as of no consequence. Astrological predictions are based on mathematical calculations^[5].

As the Lok Sabha general elections 2024 are just around the corner. Electional astrology, also known as *event astrology*, is a branch found in most traditions of astrology according to

which a practitioner decides the most appropriate time for an event based on the astrological auspiciousness of that time

Electional astrology

In India, astrology has always enjoyed the status of a national science. In order to carry on further researches in this science and it is essential to call all astrological profession on a common platform. Astrology has always influenced Indian life and Indian thinking. In the past it had attained the status of a national science. Today though some of our educated people look down upon astrology because they think it is fashionable to do so, yet it continues to permeate Indian life and Indian culture in all their ramifications.

Thanks to the research work now going on mostly in the west, many of the sayings of our ancient Rishis are now being experimentally confirmed, so that Astrology is no longer looked down with skepticism^[6]. A spirit of enquiry and organization have enabled western thinkers not only to experimentally established the truth of the fundamentals of astrology but also to organize astrologers on a professional level. It is indeed a pity that in India, no systematic attempts are yet made either to deal with Astrology scientifically or organize its study systematically. The role of astrology in the life a nation or individual is indeed considerable and its usefulness in the matter of forecasting weather, rainfall, etc in helping an individual to know what he is, is beyond dispute. That this ancient science should become an object of study and investigation on the light of modern concepts is but necessary under the present context^[6].

The coming general elections will be one of the most critical elections to be held in post-independent India. The country is virtually at the cross roads and a number of important issues have to be decided. The stature and caliber of the leaders will certainly contribute to shaping the density of the nation at this critical juncture. Hence, its quite natural that people will be curious to know as to who will emerge the density-maker^[7].

The general election is scheduled to be held in April-May 2024. The coming Lok Sabha election will be crucial and decisive in Indian Politics. The Lok Sabha elections will be fought between Ruling party and other joint front. He duel between these two rival parties will be decided in the coming polls.

The ruling party in power for almost 10 years now, will go to the people of India for approval to continue to guide their destiny. The Opposition consisting of more than ten parties will also claim power. A general election is a serious matter. The fortunes of several millions are bound by its verdict.

To expect an answer for a question of such magnitude, an idea flashed across my mind to develop a Knowledge base System using Astrological Aspects & Fuzzy-Neural Network for Prediction in Parliament Election Results-2024.

The 10th Parliament elections to be conducted in the 4th week of May 1991 are of historic importance as they will decide once for all whether the system requires reinvestigation and reinforcement or it should be replaced by the presidential system of government which is the only alternative available in the literature of democracy. In this connection it would be appropriate to analyze with the developed system^[8].

In electional astrology, an astrologer is given an event the querent intends to plan. The astrologer then finds a date and time most auspicious for the event to take place, around which the querent bases the following plans. The method of coming to these conclusions is based on the relative positions of stars, planets and other celestial bodies at various times.

Astrologers are making predictions about the winners of the upcoming India General Elections in 2024. They have analyzed the stars and planets to determine the potential outcome. With their expertise, they aim to shed light on the future of the political landscape in India. Transitioning from the realm of astrology to the world of politics, these predictions have generated considerable interest among the public. As voters eagerly await the results, they are curious to know who will emerge victorious in the race for power. The astrologers' insights offer a unique perspective, adding an element of excitement and anticipation to the upcoming elections [9].

As the movements of various planets sometimes in forward direction, sometimes in reverse direction and distance among

them is also uncertain on every day due to time varying nature of the planets, over-lapping of the regions. Thus, the application of fuzzy concepts in Knowledge base system is the best solution to find out the span and non-stationary nature of motion of planets. The thinking and reasoning processes of the human being frequently handle inexact information. Thus the expert systems incorporating such processes are able to cope up with such type of inexact information which is being handled by human experts.

Here we have considered the Universe equal to 360° , is divided among twelve regions [2]. The span of each region is 30° . Total number of regions is twelve as shown in Table 1.

Table 1: Span of the regions in the Universe

S.N.	Region	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th
1.	Span	0° to 30°	30° to 60°	60° to 90°	90° to 120°	120° to 150°	150° to 180°	180° to 210°	210° to 240°	240° to 270°	270° to 300°	300° to 330°	330° to 360°

Knowledge base system

In this work, a Knowledge Base System has been developed using Astrological Aspects Distance measure, Fuzzy-logic concepts and Error Back Propagation-Neural Network (EBP-NN) for Results of Parliament Election-2024. The fuzzy concepts account for the uncertainty or imprecision in the observations in both the ruling party and Opposite party cases. Figure 1 shows the schematic block diagram of the Knowledge Base system. It consists of a data acquisition and processing unit, Distance measure unit, fuzzification unit, inferencing unit and EBP-ANN unit.

This is the domain using which the Knowledge Base System uses the Astrological knowledge to infer the test results, and history. The knowledge acquisition system is capable of

acquiring information on Astrological entities and the relationships between them. The relationships are stored as numerical values in the range '0' to '1'. Planetary information is acquired in two ways: 1) through numerical evaluation by Astrologer expert, and 2) by statistical evaluation of a database containing astrological data on various parties. The information on the relationships can be gathered numerically. In the Knowledge Base System, the knowledge has been acquired using both the ways. The Knowledge is the heart of the Knowledge Base System. Proper design and implementation of KB significantly affect the performance of the KB System. These values for KB are shown in Tables 2 and 3 [10-12].

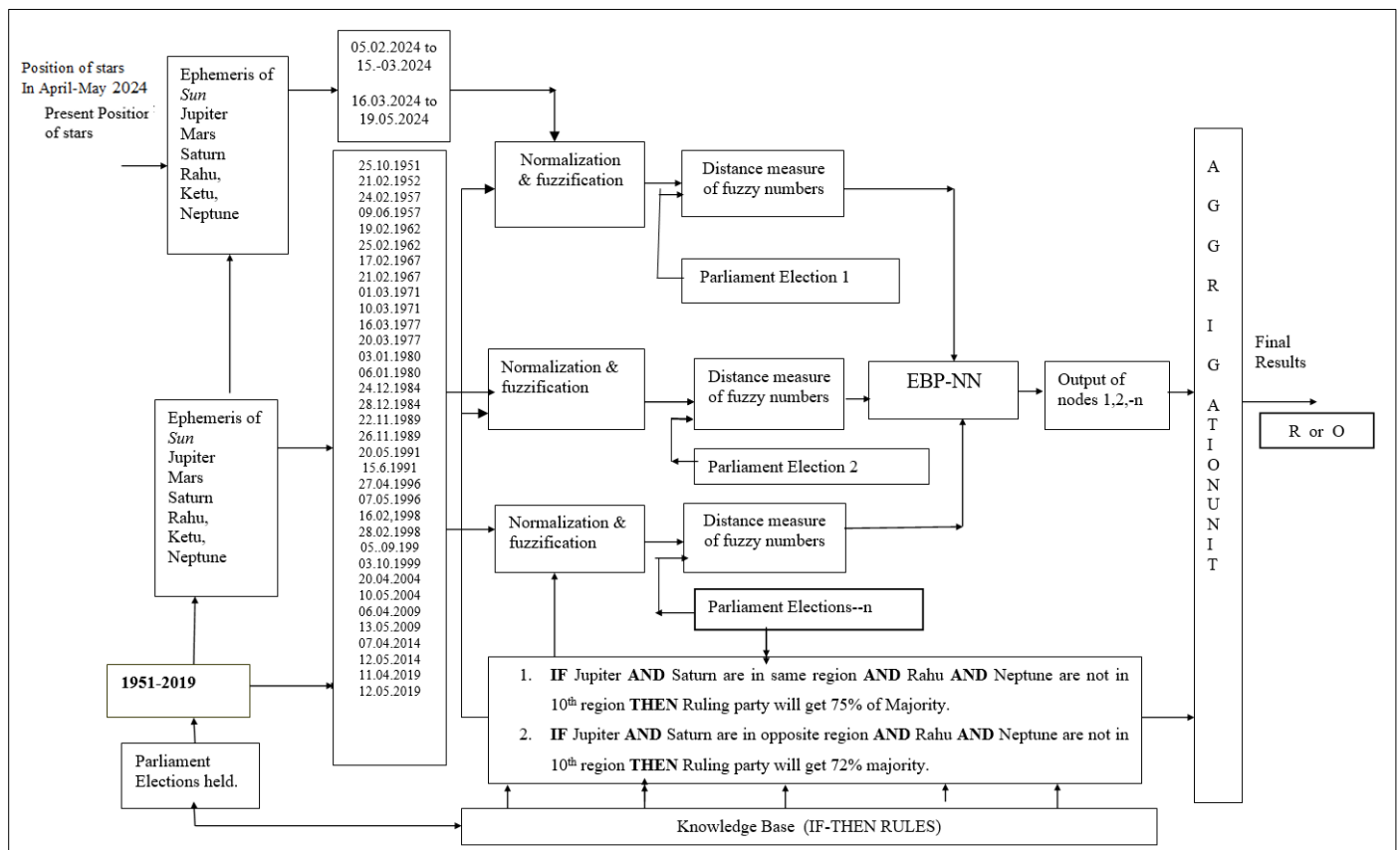


Fig 1: Block Diagram of the Knowledge System

Data Acquisition and Processing

For the purpose of constituting the Lok Sabha, the whole country has been divided into 543 Parliamentary Constituencies, each one of which elects one member as

shown in Table-2 ^[13]. The members of the Lok Sabha are elected directly by the eligible voters. The President of India can nominate a maximum of two members as representatives of the Anglo-Indian community.

Table 2: State-wise break –up of seats

S.N.	Name of State/ Union Territory	Seats in the House as constituted in 2004 on the basis of the Delimitation of Parliamentary and Assembly Constituencies Order, 1976 & Order, 2008
1.	Andhra Pradesh	42
2.	Arunachal Pradesh*	2
3.	Assam*	14
4.	Bihar	40
5.	Chhattisgarh	11
6.	Goa	2
7.	Gujarat	26
8.	Haryana	10
9.	Himachal Pradesh	4
10.	Jammu and Kashmir*	6
11.	Jharkhand@	14
12.	Karnataka	28
13.	Kerala	20
13.	Madhya Pradesh	29
14.	Maharashtra	48
15.	Manipur*	2
16.	Meghalaya	2
17.	Mizoram	1
18.	Nagaland*	1
19.	Orissa	21
20.	Punjab	13
21.	Rajasthan	25
22.	Sikkim	1
23.	Tamil Nadu	39
24.	Tripura	2
25.	Uttarakhand	5
26.	Uttar Pradesh	80
27.	West Bengal	42
II. Union Territories:		
1.	Andaman and Nicobar Islands	1
2.	Chandigarh	1
3.	Dadra and Nagar Haveli	1
4.	Delhi	7
5.	Daman and Diu	1
6.	Lakshadweep	1
7.	Puducherry	1
8.	Total	543

* - States excluded from Delimitation Exercise @ Order issued by the Delimitation Commission was nullified by the Sec 10 B of the Delimitation Amendment Act, 2008

Table 3 indicates the Number of Seats obtained by Ruling Party, next largest parties and rest all others (independent &

all other parties) in all past parliament elections held from 1952 to 2019 ^[14].

Table 3: Number of Seats of Ruling Party for all Parliament Elections

S. No	Parliament (loksabha) Election Year	Party In Power	No of Seats	Opposition Party	No of Seats OP	Total Seats
1	First (1952) 25 October 1951 & 21 February 1952.	Congress	398	Independent(Ind.)	36	543
				Communist Party(CP)	17	
				All Others	92	
2	Second (1957) 24 February and 9 June 1957	Congress	406	Communist Party(CP)	29	537
				Independent(Ind.)	25	
				All Others	77	
3	Third (1962) 19 and 25 February 1962	Congress	394	Communist Party(CP)	30	540
				Swatantra Party(Swatantra Party)	25	
				All Others	91	
4	Forth (1967) 17 and 21 February 1967	Congress	303	Swatantra Party(Swatantra Party)	45	553
				Independent(Ind.)	35	
				All Others	170	
5	Fifth (1971)	Congress	372	Communist Party(CP)	25	553

	1 and 10 March 1971			DMK		
					25	
				All Others	131	
6	Sixth (1977) 16 and 20 March 1977	Janata Party	302	Congress(Congress)	164	557
				All India Anna Dravida Munnetra Kazhagam(AIADMK)	69	
				All Others	22	
7	Seventh (1980) 3 and 6 January 1980	Congress (I)	377	Janata (S)(Janata (S))	43	566
				Communist Party of India (Marxist) (CPI(M))	39	
				All Others	107	
8	Eighth (1984) 24,27, 28 December 1984	Ruling Party	426	Telugu Desam Party(TDP)	30	567
				Communist Party of India (Marxist)(CPI(M))	23	
				All Others	88	
9	Ninth (1989) 22 and 26November 1989	Ruling Party	195	Janata Dal(JD)	142	594
				BharatiyaJanata Party(BJP)	89	
				All Others	168	
10	Tenth(1991) 20 May,12 June and 15June 1991	Ruling Party	252	Bharatiya Janata Party(BJP)	121	555
				Janata Dal(JD)	63	
				All Others	119	
11	Eleventh(1996) 27 April, 2 May and 7 May 1996	Bharatiya Janata Party(BJP)	163	Indian National Congress(INC)	140	551
				Communist Party of India (Marxist)(CPI(M))	32	
				All Others	216	
12	Twelfth (1998) 16, 22 and 28 February 1998	BharatiyaJanata Party(BJP)	183	Indian National Congress(INC)	142	546
				Communist Party of India (Marxist)(CPI(M))	32	
				All Others	189	
13	Thirteenth (1999) 5 September and 3 October 1999	BharatiyaJanata Party(BJP)	189	Indian National Congress(INC)	118	568
				Communist Party of India (Marxist) (CPI(M))	35	
				All Others	226	
14	Fourteenth (2004) 20 April and 10 May 2004	Indian National Congress (INC)	159	Bharatiya Janata Party (BJP)	144	585
				Communist Party of India (Marxist) (CPI(M))	44	
				All Others	238	
15	Fifteenth (2009) 6 April 2009 and 13 May 2009	Indian National Congress(INC)	211	Bharatiya Janata Party (BJP)	119	560
				Samajwadi Party (SP)	23	
				All Others	207	
16	Sixteenth (2014) 7 April to 12 May 2014	Bharatiya Janata Party(BJP)	289	Indian National Congress(INC)	50	573
				All India Trinamool Congress (AITC)	38	
				All Others	196	
17	Seventtten (2019) 11 April to 19 May 2019	BharatiyaJ anata Party(BJP)	303	Indian National Congress	52	545
				Trinamool Congress	22	
				All Others	168	

Table 4 indicates the Planets Ephemeris (Sun, Moon, Mars, Mercury, Jupiter, Venus, Saturn, Rahu, Ketu & Neptune) (सूर्य, चंद्रमा, मंगल, बुध, बृहस्पति, शुक्र, शनि, राहु, केतु

और नेपचून) on the day of polling of Parliament Elections held from 1952 to 2019 [15].

Table 4: Analysis of Parliament Election based on Planets Ephemeris [15] in India

S. No.	Date	Jupiter r:d:m	Saturn r:d:m	Mars r:d:m	Sun r:d:m	Rahu r:d:m	Ketu r:d:m	Neptune r:d:m	Comments	Ruled by
1.	25.10.1951	12:13:06	6:15:30	5:19:23	7:07:56	11:13:56	5:13:56	5:25:06	Saturn & Jupiter are in opposition	
	21.02.1952	12:21:05	6:21:11	7:19:35	11:8:29	11:07:37	5:07:37	5:28:05		
2.	24.02.1957	6:06:14	8:20:32	1:23:15	11:12:13	8:00:39	2:00:39	6:09:03	Saturn & Jupiter aspects on 10 th region	Ruling Party
	09.06.1957	5:29:14	8:17:19	3:29:08	2:24:58	7:25:05	1:25:05	6:07:00		
3.	19.02.1962	10:28:40	10:12:16	10:20:15	11:06:54	4:29:09	10:29:09	6:20:01	Saturn, Jupiter & Mars in 10 th region	Ruling Party
	25.02.1962	11:00:05	10:12:56	10:24:57	11:12:57	4:23:50	10:23:50	6:20:01		
4.	17.02.1967	4:02:38	12:05:02	7:07:43	11:04:36	1:17:30	7:17:30	7:00:08	Jupiter aspects 10 th & Saturn aspects 9 th region	Ruling Party
	21.02.1967	4:02:16	12:05:31	7:08:30	11:08:53	1:17:18	7:17:16	7:00:08		
5.	01.03.1971	1:11:31	11:08:12	8:24:44	9:04:16	12:27:22	6:27:22	7:09:06	Saturn aspects 10 th & Mars in 9 th region	Ruling Party
	10.03.1971	8:12:43	1:24:47	9:05:27	11:25:56	10:28:57	4:28:57	7:09:06		
6.	16.03.1977	2:03:06	4:17:04	11:03:31	12:02:04	7:02:29	1:02:29	7:22:05	Jupiter Atichari	Opposite Party
	20.03.1977	2:03:47	4:16:54	11:6:39	12:06:02	7:02:16	1:02:16	7:22:05		
7.	03.01.1980	5:16:34	6:03:27	5:20:47	9:18:30	5:08:17	11:08:17	7:27:03	Jupiter Atichari	Opposite Party
	06.01.1980	5:16:28	6:03:28	5:21:11	9:21:33	5:08:07	11:08:07	7:27:03		
8.	24.12.1984	9:26:04	8:00:20	11:05:38	9:09:02	2:01:59	8:01:59	8:06:07	Saturn in 7 th , Jupiter in 9 th & Mars in 10 th region	Ruling Party
	28.12.1984	9:26:59	8:00:44	11:08:41	9:13:07	2:01:47	8:01:47	8:06:07		
9.	22.11.1989	3:16:15	9:17:27	7:18:30	8:6:16	10:26:55	4:26:55	8:16:04	Rahu in 10 th Region	Coalition Govt.
	26.11.1989	3:16:15	9:17:27	7:18:30	8:06:16	10:26:55	4:26:55	8:16:04		
10.	20.05.1991	4:13:33	10:13:02	4:02:40	2:05:04	9:28:05	3:28:05	8:23:00	Neptune in 10 th Region	Coalition Govt.
	15.06.1991	4:17:41	10:12:22	4:17:59	2:29:59	9:26:43	3:26:43	8:23:00		
11.	27.04.1996	9:23:48	12:08:24	1:02:06	1:13:31	6:22:30	12:22:30	9:03:07	Neptune in 10 th Region	Coalition

	07.05.1996	9:23:52	12:09:27	1:09:38	1:23:13	6:21:58	12:21:58	9:03:08		Govt.
12.	16.02.1998	11:09:06	12:22:50	11:23:26	11:03:36	5:17:31	11:17:31	9:06:03	Neptune in 10 th Region	Coalition Govt.
	28.02.1998	11:11:59	12:24:04	12:02:48	11:15:41	5:16:53	11:16:53	9:06:04		
13.	05.09.1999	1:11:02	1:23:10	8:07:43	5:18:28	4:17:32	10:17:32	9:08:01	Neptune in 10 th Region	Coalition Govt.
	03.10.1999	1:08:50	1:22:11	8:26:24	6:15:48	4:16:03	10:16:03	9:07:07		
14.	20.04.2004	5:15:22	3:13:56	2:25:15	1:06:39	1:18:02	7:18:02	9:21:00	Neptune in 10 th Region	Coalition Govt.
	10.05.2004	5:15:04	3:15:41	3:07:58	1:26:04	1:16:58	7:16:58	9:21:04		
15.	06.04.2009	10:26:09	5:22:08	11:23:23	12:22:39	10:11:59	4:11:59	10:1:07	Neptune in 10 th Region	Coalition Govt.
	13.05.2009	11:00:17	5:20:57	12:14:19	1:19:01	10:10:34	4:10:34	10:01:03		
16.	07.04.2014	3:17:56	7:28:12	6:25:31	12:23:21	7:5:11	1:5:11	10:12:04	Saturn 7 th & Jupiter in 3 rd region	Opposite Party
	12.05.2014	3:22:41	7:25:49	6:15:23	1:27:27	7:03:20	1:03:20	10:13:02		
17.	11.04.2019	9:00:17	9:26:10	2:13:11	12:27:01	3:28:13	9:28:13	10:23:00	Saturn 9 th & Jupiter 8 th region	Ruling Party
	19.05.2019	8:28:08	9:26:09	3:7:57	2:03:56	3:26:12	9:26:12	10:24:00		
18.	06.04.2024	1:24:17	11:20:05	11:16:58	12:22:48	12:21:40	6:21:40	11:03:08	Saturn in 11 th , Jupiter in 1 st & 2 nd region	Ruling Party will form Govt
	17.05.2024	2:03:44	11:23:48	12:18:36	2:02:42	12:19:29	6:19:29	11:04:08		

r-represents- Region, d-Degree of Planets, M, Minutes of Planets

Fuzzification

A binary fuzzy relationship is established for the various date of polling of same parliament election and takes a values between ‘0’ and ‘1’. These values indicate the degree to which the parties obtained the seats. In fuzzy set theory, these values express the grade of membership between ‘0’ and ‘1’. Fuzzy values ranging from ‘0’ to ‘1’ represent the membership function for winning seats in the same parliament election. while the values ‘1’ and ‘0’ represent the ‘maximum occurrence seats and minimum & highest seats respectively.

Distance measure of fuzzy numbers

Lucien Duckstein *et al.* have carried out detailed study on three types of distance measure functions, namely $D^2(M^o P^o)$, $D(M^o P^o)$, $|D(M^o P^o)|$ [16]. It was concluded that Hagman distance function $D^2(M^o P^o)$ is the best suited function for all applications. The first method is a linear function of the experimental parameters, whatever may be the form of membership functions. Therefore, the Hagman distance function is used in this work.

The distance of each measured parameter i.e. Ephemeris of each Planets in April/May 2024 is calculated separately from the parameters i.e. Ephemeris of each Planets available in the knowledge base (from 1951 to 2019). The Hagman distance $D^2(M^o P^o)$ is a scalar quantity and is defined as

$$D^2(M^o P^o) = \int_0^1 \{ [xP_L(h) - xM^o_L(h)]^2 + [xP_R(h) - xM^o_R(h)]^2 \} f(h) dh \dots\dots\dots$$

Where, $f(h) = 1$ is weighting function for triangular membership functions [16].

Where, $f(h) = 1$ is weighting function for triangular membership functions [16].

For crisp measurement:

Step 1: Assign membership function equal to '1' to the measurement (duration when number of seats obtained were maximum), and '0' for all other values of the parameter (duration when seats obtained were minimum) as shown in Fig 2.

Step 2: Take any point ‘h’ on the y- axis between 0 and 1 and draw a straight line parallel to parameter axis.

Step 3: Find intersection points a, b and c for this value by crisp measurement and by triangular membership function of that parameter stored in the KB.

Step 4: Determine the parameter values for given membership function h by using following relationships: $xM_L(h) = xM_R(h) = ha$ and $xP_L(h) = hb$ and $xP_R(h) = hc$

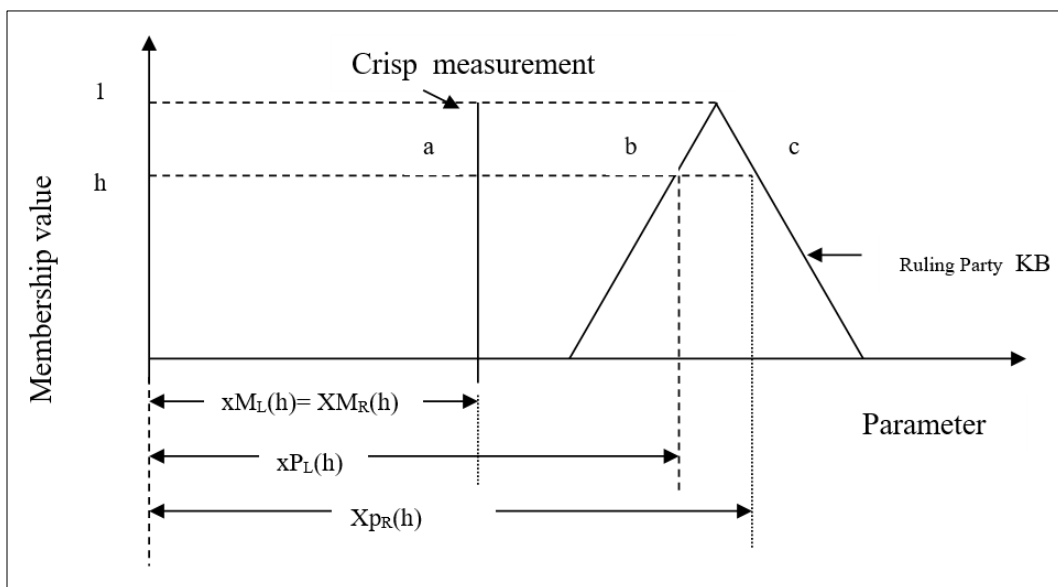


Fig 2: Determination of membership function for crisp measurement

Where h = Membership function

$xM_L(h)$ = lowest value of the measured parameter for given membership function h

$xM_R(h)$ = highest value of the measured parameter for given membership function h

$xP_L(h)$ = lowest value of the same parameter for given membership function h in the KB

$xP_R(h)$ = highest value of the same parameter for given membership function h in the KB

Artificial Neural Network

The artificial neural network comes from the biological neural network, which develops the structure of the human brain, which has interconnected neurons; ANN have neurons that are interconnected at several layers. These neurons are called nodes.

Neural Network is a system, composed of many simple processing elements, called neurons, operating in parallel whose function is determined by network structure, connection strength, and processing performed at computing elements. ANN is promising new generation information processing network. ANN's ability to perform computations is based on hope that we can reproduce the flexibility & power of human brain by artificial means. ANN are capable of handling situations of incomplete information, corrupt data and they are fault tolerant [17].

The behavior of the human brain is directly reflected in the neural networks, also enabling computer programs to solve problems and recognize patterns related to AI, ML, and DL. Neural networks, called simulated neural networks (SNNs) or artificial neural networks (ANNs), are a subset of machine learning and form the heart of DL methodologies. The human brain inspires its structures and names to mimic the biological neurons give signals to each other. ANN consists of a node layer that includes an input layer, an output layer and one or many hidden layers [18].

Every artificial node or neuron is connected to the other node, with weights and thresholds corresponding to it. When the output of the single node exceed the particular threshold, that activates the node, and data to the next layer of the network is transferred. Otherwise, the data will not be to the next passed layer of the network. This network simulates the biological neurons of the human brain in a very simplified way. In short, the biological neural network consists of a huge number of neurons. A typical neuron is made up of cell bodies, dendrites, and axons. Dendrite is thin structure that emerges from the cell body. Axons are the elongation of cells that emerge from the cell body. Generally, all neurons send signal to axons and receive signal via dendrites. At most synapses, the signal intersects the axons of one neuron to the dendrites of another neuron. Most neurons are electrically excited because the voltage gradient of the membrane is maintained.

When the voltage changes sufficiently in a short period of time, neurons generate electrochemical pulses called action potentials. This potential moves quickly next to the axon and

activate synaptic connections when it reaches the axon. These networks usually consist of connected units or sets of nodes called node neurons. The artificial neuron roughly is modelled as the biological neurons of the brain. Figure 3 shows a typical labelled diagram of a neuron.

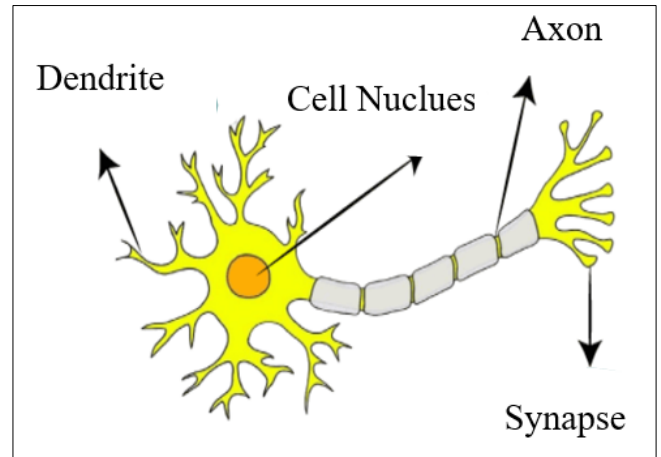


Fig 3: Typical diagram of a biological neuron

Learning of Neural Networks

Artificial neural networks are composed of interconnected "neurons". The function of the *synapse* is modeled by a modifiable weight, which is associated with each connection. Each neuron converts the pattern of incoming activities into a single outgoing activity that it fans out to other neurons. It performs this conversion in two stages: It multiplies each incoming activity by the weight on the connection and adds together all these weighted inputs to get a quantity called the net input. A neuron uses an input-output function that transforms the total input into the outgoing activity. The behavior of an ANN (Artificial Neural Network depends on both the weights and the input-output function (transfer function) that is specified for the neurons. The activation function transforms neuron's input into output. It prevents accelerating growth of activation levels through the network. The transfer function typically falls into one of three categories:

- Linear
- Threshold
- Sigmoid
- For linear units, the output activity is proportional to the total weighted output.
- For threshold units, the output is set at one of two levels, depending on whether the total input is greater than or less than some threshold value.
- For sigmoid units, the output varies continuously but not linearly as the input changes.

Other activation functions are step, ramp and Gaussian function as shown in Figure 4.

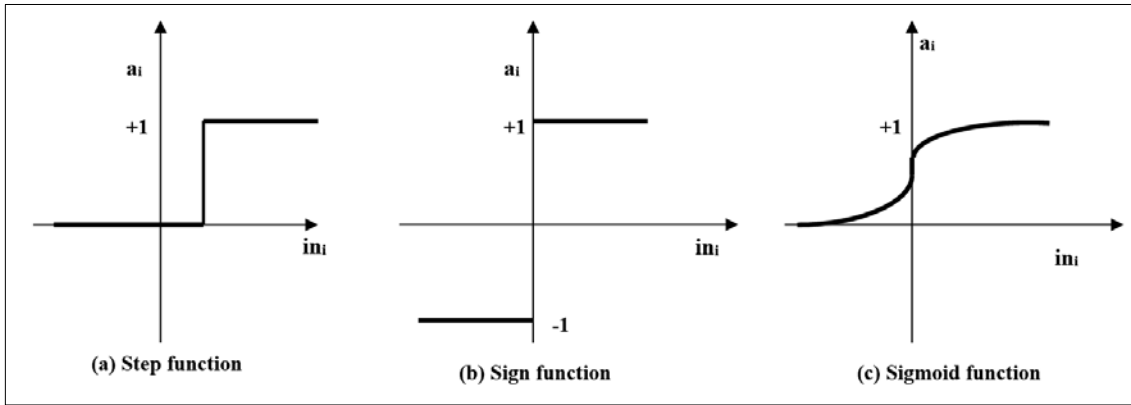


Fig 4: Activation functions

Classification of ANN Models

ANN Models are classified in several ways as shown in Figure 5

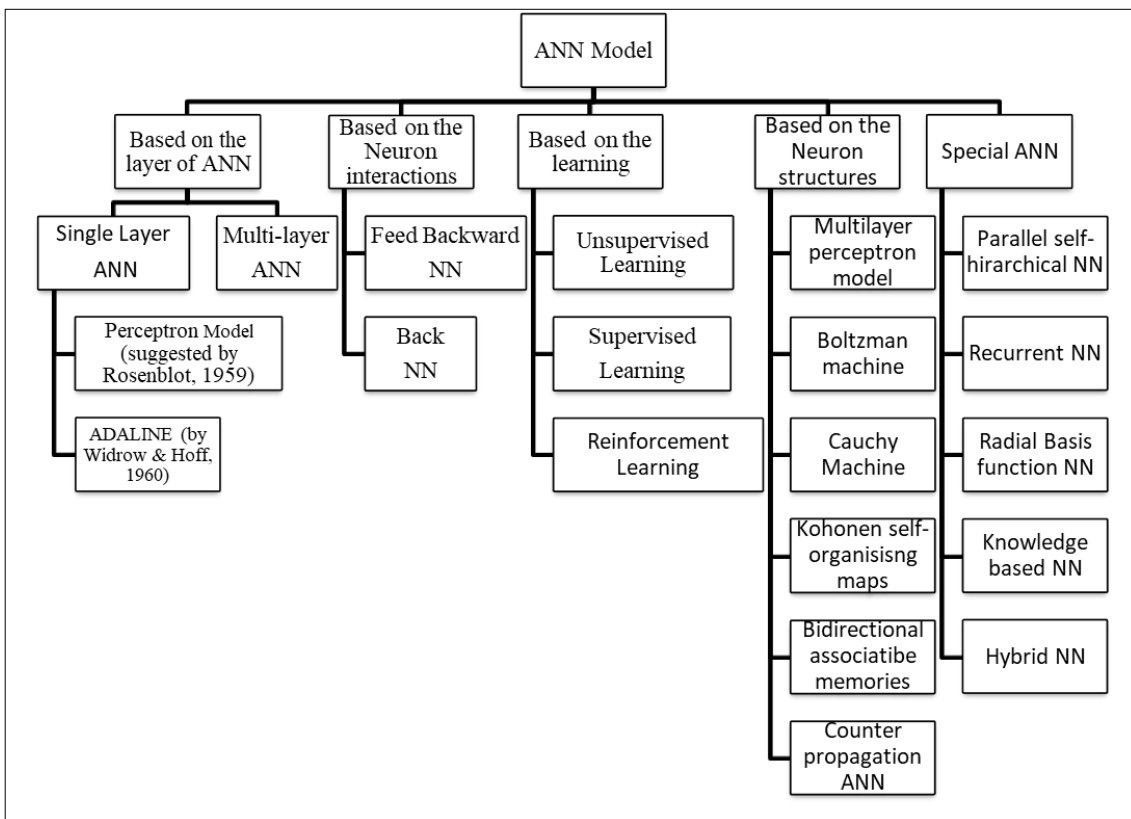


Fig 5: Classification of ANN Models

Back propagation learning algorithm (Batch mode)

Figure 6 shows a typical artificial neural network, where x_1, x_2, \dots, x_n are the neurons at input nodes, M_1, M_2, \dots, M_n are neurons in hidden layers and w_{ij}, W_{ji} are connection weights and y_1 is a output of node 1, y_2 is output of node 2, and Y_n is the output of node n.

As shown in Table 4, the outputs of the EBP-NN are in the form of '0' and '1'. All possible combinations of 0's and 1's are taken into consideration. The output layer has 3 nodes; case-I - 1st node for no majority to any one party, case-II, node 2nd, majority to opposition party and case-III, 3rd node for majority to ruling party.

1. Initialize the connection weights w_{ji}
2. Initialize the iteration count K .
3. Read an input pattern (training pattern) p .
4. Starting from the neuron in first hidden layer, calculate the neuron output using equations

$$NET_{j,p} = \sum_i W_{ji} O_{i,p} \dots\dots(i)$$

Where h = neuron in the hidden layer
 j = neuron in the output layer
 $NET_{j,p}$ = net input (inner product) of neuron j
 i = neuron in the input layer
 $O_{j,p}$ = output of neuron j
 W_{ji} = connection weight from neuron i to neuron j

The neuron output is given by

$$O_{j,p} = f(NET_{j,p}) = \frac{1}{(1 + e^{-NET_{j,p}})} \dots\dots(ii)$$

Calculate the error (mean square error) for the pattern p using the equation.

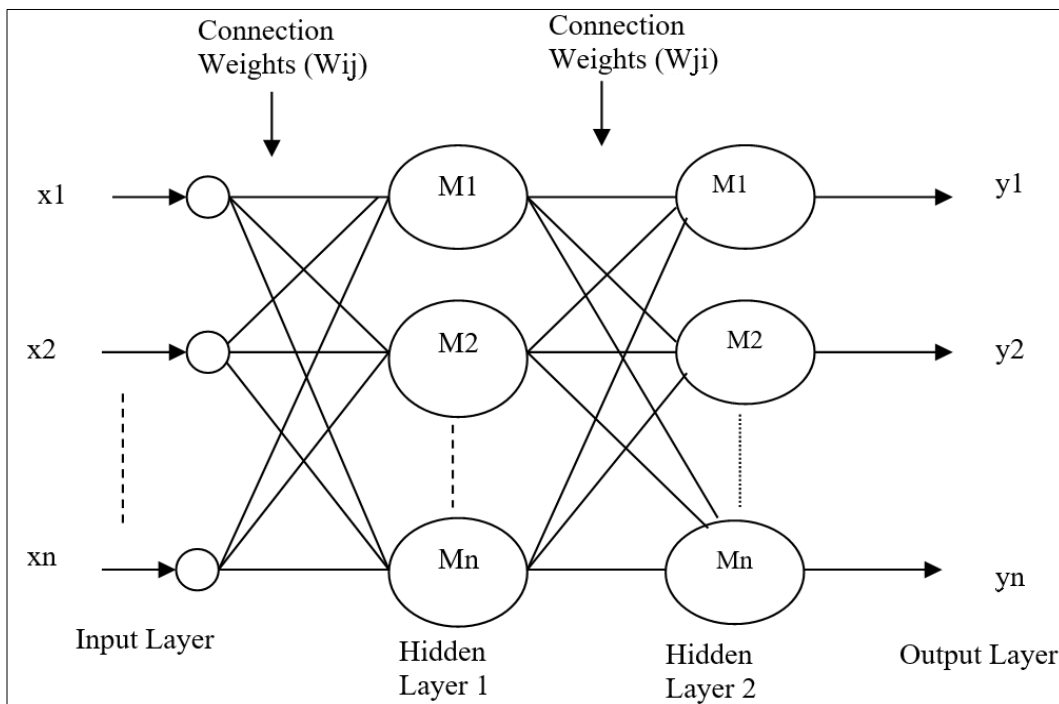


Fig 6: EBP-NN Topology for Inference System

A Two layer EBP-NN having 3 nodes at the input and 3 nodes at the output has been trained by taking the various combinations of nodes in the first and second hidden layers and different values of the learning rate and momentum factor. Several trials were made for large number of iterations. It was found that 3-4-3-3 EBP-NN model gives the best result with learning rate equal as 0.2 and momentum factor as 0.4 and the resulting average error is of the order of 0.09047% in the various category of Parliament Elections. The crucial characteristic of the NN is that it can learn by example to perform useful tasks. This is usually achieved by using teaching algorithms that iteratively modifies the network weights until it responds as desired to a set of input patterns in the process of supervised learning. The network is trained by 06 input sets and tested with 6 input sets. After testing the Results of Parliament Elections has been predicted by trained

weights. Table 5 shows various combinations of output nodes & 3 conditions will arrive: (i) When output to all 3 nodes of EBP-NN are '0' that means no majority to any one party. (ii) When output to node 1 is '1' and output to node 2 & Node 3 are '0' then opposite party will come in Power (iii) When output to node 1 is '1' then again 3 conditions will arrive: (a) output to node 1 is '0' & output to node 3 is '1' then ruling party will come in power with marginal seats (b) output to node 2 is '1' & output to node 3 is '0' then ruling party will come in power with clear majority i.e. around 60% of total seats (c) output to node 2 & 3 are '1' then ruling party will come in power with high majority i.e. around 75% of total seats

The output of the EBP-NN is 111, it indicates that the Ruling party will come again in power with high Majority.

Table 5: Output Nodes

SN.	State of Parties	Node1	Node2	Node3	Result
1.	All Parties	0	0	0	No Majority to any one
2.	Opposition Party	1	0	0	Majority
3.	Majority of Ruling Party	1	0	1	Borderline
		1	1	0	Clear-cut
		1	1	1	High

Aggregation unit and final results of parliament election results-2024

The above output is then combined with the Fuzzy Inference Rule Base for final Results of Parliament Election Results-2024 [18-20]. Following If-then rules are used in the aggregation unit with the output of the EBP-NN, obtained on the basis of the planet ephemeris for final decision.

Fuzzy Inference: Following rule base has been formed from the range of the parameters available in the KB:

IF-Then Rules

1. IF Jupiter AND Saturn are in same region AND Mars is own sign AND Rahu & Neptune are not in 10th region THEN Ruling party will get 75% of total seats.

- IF Jupiter AND Saturn are in opposite region AND Rahu AND Neptune are not in 10th region THEN Ruling party will get 72% of total seats.
- IF Jupiter, Saturn & Mars are exalted AND Neptune are not in 10th region THEN Ruling party will get 78% of total seats.
- IF Jupiter, Saturn & Mars are depilated AND Neptune are not in 10th region THEN Ruling party will get 35% of total seats.
- IF Saturn AND Jupiter AND Mars aspects 9th region, AND Jupiter having fast speed THEN the Ruling party will not come in power and change of Government is indicated.
- IF Saturn AND Jupiter AND Mars aspects are in the same region AND Neptune is not in 10th region THEN

the Ruling party will come in power 66.60% of total seats.

7. IF angle between Jupiter and Saturn is 60° to 90° AND angle between Saturn & Mars is 120° to 180° angle between Jupiter & Mars 120° to 180° THEN the Ruling party will get more than 75% of total seats.
8. IF Jupiter is in 1st region AND Saturn in 11th AND Mars in 11th region AND Neptune is not in 10th region THEN the Ruling party will get more than 75% of total seats.
9. IF Jupiter is in 2nd region AND Saturn in 11th AND Mars in 12th region AND Neptune is not in 10th region THEN the Ruling party will get more than 75% of total seats.
10. IF Jupiter is having fast speed AND Neptune is in 10th region THEN the Coalition Government will come in power.

All the data related to the ephemeris of various planets are for all the Parliament Elections held in past are obtained from the Astrological software's and verified from Advance Ephemeris for Hundred Years by N C Lahri, Astro-Research Bureau, Calcutta. Distance of planetary Ephemeris for April-May 2024 have been measured by using Hagman distance from Ephemeris of planets from all the Parliament Elections held in past. Out of Seventeen dataset, of planet Ephemeris, Six dataset were found the minimum distance from Planetary Ephemeris of April-May 2024. All the six independent interpretations of the Parliament Results available on the basis of the all planetary position are given to EBP-NN and output of EBP-NN gives the final Result.

Results and Discussions

Uncertainty hovers over both the main contestants, but there are other contenders too for power in the state but even together may not add up to much.

It is seen that the Parliament Elections held from the year 1989 to year 2009, total nine Parliament Elections), no party got clear-cut majority. Major Party were forced to do Alliance with other parties to form the Government. Parliament Elections held from the year 1989 to year 2004, this is due to effect of Neptune which is in 10th region. In 2009 Parliament Election no party has been obtained majority due to Jupiter's fast speed. It is also observed that Hagman distance of planets position in April-May 2024 is found minimum with planets position 1951/1952, 1957, 1962, 1971, 1980, 1984, and maximum with 1967, 1977, 2014 & 2019 Parliament Elections. Therefore EBP-NN is trained with these six planetary positions. After training with these, the system has been tested with planetary positions of April/May 2024 i.e. for 2024 Parliament Election. It is found that the Ruling Party will get $75.13\% \pm 2\%$ Error of total Parliament seat. This 2% Error is due to variations in the moon position on the day of polling. When moon & Jupiter is in the same region or Jupiter in 1st region and moon is in 5th 7th or 9th region this error will be positive. If Rahu & moon are in the same region or Rahu in 12th region and moon in 4th or 6th or 8th region then this Error will be negative. If total seats in Parliament Election 2024 are 543 then the Ruling Party will get $407.9557 = 408 \pm \{(2\% = 2 \times 543 \div 100)\} = 408 \pm 11 = 397$ to 419 seats.

Conclusion

Thus on the basis of collective significance outlined for the parties, it may be concluded that a Government headed by ruling party may be formed after the coming elections in April/May 2024. Since the moon is the fast moving Planet, it complete 360° in 27 days. Movement of moon will affect

thinking of mind of human being directly. The Model will become more accurate if the date of polling will be known prior, so that the effect of other planets such as Moon, Venus, Mercury will be considered on the date of polling.

Future Scope

With the proposed model, the future work will be done to find out

- The state-wise analysis for Parliament Election
- The analysis for Assembly election of each state.
- Expert System using Astrological Aspects & Fuzzy-Neural Network for Prediction in Earth Quake in India.
- Planetary Positions & Machine learning based Hybrid Model to Forecast environmental conditions for better decision making to farmers, Crops & increased crop yields
- Astro-technology based Problem solving Model for betterment of life for Society.

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