

Trans-Pacific Partnership (TPP) Competition-Asian Infrastructure Investment Bank (AIIB) and its Effect on Balance of Power AS-PRC

¹Ade Priangani, ²Agus Herlambang, ³Iwan Ridwan Zaelani

Abstract--- *This research aims to provide a description and confirmation concerning the strategy focused on the Asia Pacific region competition. The rebalancing strategy is evident from the US participation in TPP, the US presence to the Asia Pacific region was triggered by the increasing capability of China that became a new power in the region both in the economy, diplomacy, and military. The method used in conducting this research is a description that aims to describe the phenomenon in terms of the influence of the TPP-AIIB competition against the US-China Balance of Power. Data is obtained from relevant documents, study results and mass media, while primary data is from observation. Data are analyzed based on the theory and concept of international relations and being interpreted. The results of this research show that the forms of competition TPP-AIIB in the form of a US policy "pivot to Asia" The strategy is a concentration of foreign policy direction which is a continuation of the national interests of the United States -Pacific Partnership (TPP) is more potential in the counterbalance of US dominance in the Asia Pacific region.*

Keywords--- *Trans-Pacific Partnership, The rise of China, Balance of Power.*

I. INTRODUCTION

Entering the 21st century, the Asia-Pacific region has shown some significant developments that have caused changes in the world's geopolitical and geoeconomic order. Countries in this region are starting to rebuild their economies and reborn as the new emerging power on the international stage. Asian producers have captured a large part of the global production chain. Asian governments and government-controlled institutions hold about two-thirds of the \$ 6 trillion-plus world foreign exchange reserves.

East Asia in total Gross Domestic Product (GDP) has risen sharply from around 12 percent in 1970 to nearly 25 percent in 2008. In the global trade sector, the percentage of East Asian trade volume increased from 10 percent in 1975 to 30 percent in 2008 (MacDonald & Lemco, 2011) [1]. Gradually, countries such as China, India, Japan, South Korea, Singapore, and other Asian countries have become the center of world economic and political order, marking a new era that is often referred to as "Asia-Pacific Century".

The Asia-Pacific region has now turned into a more important region for the United States than ever before. Therefore, the Obama administration then issued an economic rebalancing strategy towards the Asia-Pacific, namely

¹ Ade Priangani, Universitas Pasundan Bandung-Indonesia, Email: adepriangani@rocketmail.com.

² Agus Herlambang, Universitas Pasundan Bandung-Indonesia.

³ Iwan Ridwan Zaelani, Universitas Pasundan Bandung-Indonesia.

through its participation in the Trans-Pacific Partnership (TPP), which became an instrument of the United States (US) and seeks dominance in the Asia Pacific region, especially in countering Chinese influence. In addition, as a US hegemonic country, it can play a role in establishing the rules and principles of TPP cooperation, making it very possible for the US to become a major player in utilizing the absence of China in the Trans-Pacific Partnership (TPP).

On the other hand, Chinese President Xi Jinping at the APEC meeting (October 2013) in Bali took the initiative to propose the formation of an international financial institution called the Asian Infrastructure Investment Bank (AIIB) with the basic idea of accelerating infrastructure development and the development of the Asian region. The purpose of establishing AIIB is to support connectivity, integration and improve the economy as a whole and improve the competitiveness of Asian countries. In terms of geopolitics, China wants to increase its influence to increase its greater role in international financial institutions, of course, this needs support from countries in Asia to become the AIIB founding member.

Theories that can support and answer the problems in the above study are: International political economy can be simply interpreted as a global interaction between politics and economics. Robert Gilpin defines the concept of international political economy as follows: "The dynamics of global interaction between the pursuit of power (politics) and the pursuit of wealth (economy). In this definition, there is a reciprocal relationship between politics and economics. Countries and markets interact with one another to influence the distribution of power and wealth in international relations "[2]

International economic and political studies require the integration of theories from economic and political disciplines, for example, issues in the issue of international trade, monetary, and economic development.

In this case, the Trans-Pacific Partnership (TPP) is one of the issues of free trade. Trans-Pacific Partnership (TPP) is a trade agreement between 12 (twelve) countries consisting of the United States (US), Japan, Australia, Brunei Darussalam, Canada, Chile, Malaysia, Mexico, New Zealand, Singapore, Peru, and Vietnam. In total, the agreement covers \$ 30 trillion in Gross Domestic Product (GDP) or 40 percent of total world GDP [3].

In a country's efforts to achieve progress, cooperation, and prosperity a perfect free trade system is needed, in the free trade system one of the two regions will be more efficient in the production of goods than the other or not, if each specializes in production with each way has a comparative advantage (relatively large efficiency), trade will be mutually beneficial for both regions (Samuelson 1967: 651). So that in a world economy based on free trade all countries will benefit through specialization and prosperity will increase. Economic exchange in the market is then a 'positive-sum game': everyone gets more profit than they invest [4].

Furthermore, the theory of international trade known as the theory of absolute superiority was also put forward by Adam Smith. According to him that: "a country wants competition, free trade, and specialization in the country, then the same thing is desired in relations between nations. For this reason, he proposes that all countries should specialize in commodities where they have absolute advantage and import other commodities "[5].

China is one of the biggest exporters in the world. Since market reforms in the late 70s, China's economy has quadrupled and is expected to double in the next decade (Ikenberry, 2008). China's growth is one of the highest in

the world. In 2009, the collapse of the international export market accompanied by the global financial crisis had an impact on China, but the country's economy soon grew back [6].

Furthermore, Comparative Advantage theory proposed by David Ricardo (1772-1823), who argues that: "commercial activities carried out freely from national borders - will bring benefits to all participants because free trade makes specialization and specialization increase efficiency and, thus, increase productivity" [4].

This can be seen from the two issues that are currently developing, namely the Trans-Pacific Partnership (TPP) strengthening the neoliberalism agenda (Noam Chomsky). Almost all TPP agendas are in line with the three major neoliberal agendas, namely: one, free trade of goods and services; second, free circulation of capital and third is independence in investing (Susan George, 1999). Most of those who benefit from the neoliberalism agenda are US-based corporations. The TPP will make goods and services made in America flood the TPP member countries.

In this regard, it can be seen from the Trans-Pacific Partnership that focuses more on running in an Asia Pacific (regionalism) region. Inter-country interactions within the region according to Cantori and Spiegel namely: "The area consists of four variables, namely: the nature and degree of cohesiveness of actors which will determine the level of interaction between them, the nature of communication within the area; the level of power possessed by regional actors and the structure of relationships between sectors within the region" [8].

II. METHODOLOGY

The method used in conducting this research is a description that aims to describe a phenomenon in terms of the influence of TPP-AIIB competition against the US-China Balance of Power. Especially in the Asia Pacific region systematically and sought to solve problems. The description is an attempt to answer the question, who, what, where, when or how; So it is an attempt to report what happened. Data is obtained from relevant documents, study results and mass media, while primary data from observation. Data are analyzed based on the theory and concept of science international relations and being interpreted.

III. RESULTS

Form of TPP Competition with AIIB

The China initiative to establish AIIB has at least two reasons namely to reform the financial system and to help contribute to infrastructure development in Asia. [9]. In addition, China's demand to get more votes at the IMF and ADB has not been granted by the US, causing impatience and choosing to make their own facilities that are more able to accommodate their aspirations. China no longer wants to be treated in an equal position, so that China is strong enough to demand it. In addition, China wants to help develop regional infrastructure. The World Economic Forum in 2013 stated that overcoming infrastructure problems would increase world GDP by six times.

The Chinese initiative was strongly responded by the US violently because the US was worried AIIB would reduce the influence of negotiating leverage that the US had [10]. The US is trying to persuade its allies not to join AIIB. But the US friendly countries flocked to join the AIIB. The AIIB launch was carried out with 57 countries

being members.

The US was also more active in encouraging TPP initiatives, which were intended to show that it was the US, which should write down the rules on global trade [11]. The TPP included various high standards related to trade, which made it impossible for China to join, but the TPP itself was not welcomed as warmly as AIIB, because the TPP intervened too much in domestic matters. TPP not only regulates tariff matters, but also other aspects such as intellectual property rights, data protection regulations, corporate governance, environmental and labor standards, and financial regulations. Many also perceive that the TPP will only benefit the US. In TPP, any infrastructure project must pass a strict environmental test before it starts. Such an environmental test can take more than 10 years. With the involvement of Europe and other advanced Asian countries, this environmental standard will certainly not be ignored. This makes TPP less attractive for developing countries that are more concerned with the availability of roads and electricity [12].

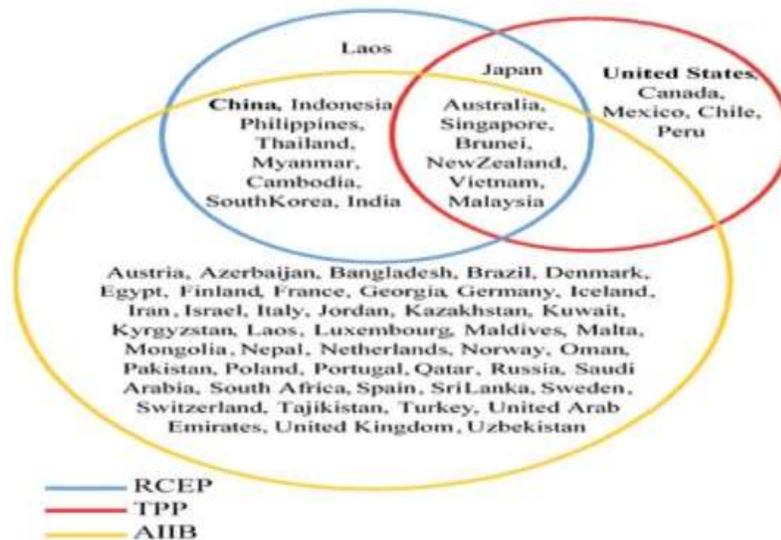


Figure 1, Form of TPP Competition with AIIB

In the scheme above, it is illustrated that China succeeded in conducting cooperation, especially with neighboring countries, namely all ASEAN members. In addition to ASEAN members, Australia, Japan, New Zealand, which had previously been affiliated with the TPP, it was seen that these countries wished to join the RCEP cooperation or enter into China's development bank, AIIB. China also has the advantage of working with India, which had previously been hampered. The AIIB range does not only cover the Asia Pacific, but also other countries spread throughout the world.

With the collaboration of AIIB and RCEP, it is expected to be able to reduce the negative impact of TPP initiated by the United States and it is hoped that this collaboration can become the basis for the implementation of broader interests. AIIB can be a sign of China's success due to the increasing strength of China with the growing influence of China throughout the world. China shows a new ability to embrace alliances, even some of these countries are allies of the United States.

China's Strategy in Rebalancing US influence on TPP

The concept of balance of power which is one of the concepts in the realist is very influential in China's response to the TPP. US forces that have dominated the TPP can be a threat that is feared to produce harm to China. Therefore, the Chinese government tries to find a strategy that is profitable for China. Where the strategy is strived to balance the effects of economic growth as well as the dominance of US power in East Asia and the Pacific. Some of the strategies carried out by China include:

1. Establishing the Asian Infrastructure Investment Bank (AIIB)

The Asian Infrastructure Investment Bank (AIIB) is an international financial institution established at the initiative of China. The reason China established AIIB is that countries in the Asian region really need funds to develop infrastructure and on the other hand China has a lot of funds to invest. The aim is to support infrastructure development in the Asia-Pacific region, the basis of the AIIB establishment initiative is that the Chinese Government has been frustrated by what they perceive as slow reforms and governance, and wants greater input into global established institutions such as the IMF, The World Bank, and Asian Development Bank, which claims are dominated by American, European and Japanese interests.

Furthermore, the Asia Infrastructure Investment Bank emphasized the role of China as a donor country [13]. During the last decade, since the economic crisis, China has risen very fast from adversity, but now China is able to be a donor and investor country in various parts of the world. Most of the development assistance is still distributed bilaterally. AIIB is as one of the alternative vehicles to channel funds and invest Chinese interests in various parts of the world [14]

Investment can be the basis for wider interest. Likewise, China hopes that with money China can buy power. A few decades ago China adopted a closed foreign policy. However, for now, China is actively carrying out diplomacy with countries around the world to expand and deepen its influence. In an effort to deepen its influence, China is using foreign development and investment policies for the Asia Pacific region [15].

2. Encourage the development of FTAs

Free Trade Agreement or also known as FTA is a form of a free trade agreement between one country with another country. FTA policies began to develop rapidly in an effort to encourage economic liberalization. Speech Li Wei, President of the Research Center of the China State Development Council at the Asian Financial Forum has become an attraction in seeking alignments with China [16]. Where in his speech, Li Wei stated that close neighbors are better than distant relatives. Li indirectly guarantees that a country with a close geographical position will be more profitable, where the country with the close position in question is China. China as a country with economic development that is almost equal to the US and has geographical proximity to Asia, making China an important guarantee in economic stability and development in Asia. So in other words, Li Wei's statement seemed to voice that cooperation with a close country would be more profitable than cooperating with a distant country (US).

TPP-AIIB Competition and US-China Balance Of Power

Competition between China and the US occurs because it is triggered by the United States "pivot to Asia" foreign policy. Pivot to Asia is an expression of a strategy focused on the Asia Pacific region. The strategy is in the form of a concentration of foreign policy direction which is a continuation of the national interests of the United States [16]. The effort implemented by the United States is a form of foreign policy priority to the Asia Pacific region. This strategy focuses on several parts, including the development of economic cooperation, strengthening of the alliance state, joint security guarantees through regional institutions to help handle disputes related to territorial borders peacefully.

Pivot to Asia or officially called the rebalancing strategy is broad, not limited to elements of military defense but also economic, social, political, and diplomacy, which some believe will pose a risk to the relations of countries in the Asia Pacific region, especially related to the emergence of threat perception from other countries. Some pros and cons follow the determination of the United States' strategy to the Asia Pacific region, especially the emergence of various speculations regarding bilateral relations between the United States and China. Some parties underlined that the presence of the United States in the Asia Pacific region was triggered by the increasing capability of China, which became a new force in the region in the fields of economy, diplomacy, and military.

The rebalancing strategy can be seen from the US participation in the TPP, besides participating in the TPP agreement, the United States also has agendas that TPP will force its member countries to one, dismantle all tax rules and export/import rules that hinder the entry and exit of goods/services. As claimed by the US alone, at least 18,000 tax rules in 11 TPP member countries will be dismantled to facilitate the entry of US goods; second, eliminate 98 percent (target: 0 percent) of tariffs for various products, including milk, meat, sugar, rice, horticultural products, seafood, manufactured products, natural resources and energy; and three, eliminate all policies that seek to protect domestic products, including a ban on campaigns to buy local products. Therefore, TPP has the potential to crush domestic industries and micro, small and medium enterprises (MSMEs) [18].

Geopolitically, the TPP is a tool for the United States to strengthen its economic and political dominance in the Asia-Pacific region. TPP does not include China, the largest ally of the US, in the TPP agenda. In fact, the PRC is a new economic power that has an influence on the global economy.

Political strengthening in the region is another focus of interest that the US wants to achieve through the TPP as a policy measure in the Asia Pacific region. "The goal of the rebalance is not a strategic initiative to affect one nation or push people in any direction. It is an inclusive invitation to join in this march towards prosperity, dignity and stability for countries. I can confirm today that the Obama Administration is absolutely committed to seeing through all of these goals. But there should be no doubt that a key component for our rebalance strategy is also about strengthening the U.S-China relation. Why? Because a stronger relationship between our two nations will benefit not just the United States and China, not just the Asia Pacific, but the world"[19].

The US states that TPP is one of the rebalancing strategies used in China. However, it is also emphasized that this is not one of the specific steps used to achieve a specific purpose.

IV. CONCLUSION

TPP-AIIB forms of competition in the form of a US policy "pivot to Asia" The strategy is in the form of a concentration of foreign policy direction which is a continuation of the national interests of the United States. Pivot to Asia or officially called the rebalancing strategy is broad, not limited to elements of military defense but also economic, social, political, and diplomacy, which some believe will pose a risk to the relations of countries in the Asia Pacific region, especially related to the emergence of threat perception from other countries. Chinese Strategy in Balance of Power US influence in the Trans-Pacific Partnership (TPP) Establishing the Asian Infrastructure Investment Bank (AIIB) financial institution, the Asian Infrastructure Investment Bank is an international financial institution established at the initiative of China created by the vice-chairman of China's central economic exchange International. In an effort to deepen its influence, China uses development policies and foreign investment for the Asia Pacific region, then China encourages the development of FTAs from the many FTA strategies developed by China, some FTAs that are considered potential are The China-Japan-Korea Free Trade Agreement, The China - Korea Free Trade Agreement, The China Australia Free Trade Agreement and The Regional Comprehensive Economic Partnership. The three FTAs are more potential in counterbalance of US dominance in the Asia Pacific region.

REFERENCES

- [1] Aron, Raymond. (1968). *what is a theory of international Relations?* dalam, John C. Farrel & P.smith, Theory and Reality in International Relations. Columbia:University Press.
- [2] Burchill, Scott dan Andrew Linklater. (2013). *Teori-teori Hubungan Internasional*. Bandung: Nusa Media.
- [3] Dunne, Tim, Milja Kurki, Steve Smith. (2013). *International Relations Theory, 3rd edition*. London: Oxford University press.
- [4] The World Bank. (2016). Kawasan Asia Timur dan Pasifik tetap kuat menghadapi situasi global yang menantang: Bank Dunia, in <http://www.worldbank.org/in/news/press-release/2016/04/10/east-asia-pacific-growth-remains-resilient-in-face-of-challenging-global-environment-says-world-bank>, accessed December 8, 2019.
- [5] Gilpin, R. (1987). *The Political economy of International Relations*. New Jersey: Princeton University Press.
- [6] Grahame, Thompson. (1998). *Economic Dynamism in the Asia-Pasific*. London and New York: The OpenUniverity
- [7] Holsti, K.J. (1992). *Politik Internasional: Suatu kerangka Analisis*. Bandung: Bina Cipta.
- [8] Ikbar, Yanuar. (2014). *Metodologi & Teori Hubungan Internasional*. Bandung: Refika Aditama.
- [9] Jackson, Robert dan George Sorensen. (2009). *pengantar studi hubungan internasional*. Yogyakarta: Pustaka Pelajar.
- [10] Masykur, S. (2015). Trans-Pacific Partnership dan Artinya bagi Indonesia, in <http://news.detik.com/kolom/3075190/trans-pacific-partnership-dan-artinya-bagi-indonesia>, accessed December 18, 2019.
- [11] Jackson, R., & Sorensen, G. (2009). *Pengantar Studi Hubungan Internasional*. Yogyakarta: Pustaka Pelajar.
- [12] Teori Perdagangan Internasional dan Investasi". (2018). in <http://bisnisinternas.blogspot.co.id/2012/10/pertemuan-3-teori-perdagangan.html>, accessed December 18, 2019.
- [13] BBC News Asia. (2018). China Country Profile in <http://www.bbc.com/news/world-asia-pacific-13017877>, accessed December 18, 2019.
- [14] Perwita, A. A. B., & Yani, Y. M. (2011). *Pengantar Ilmu Hubungan Internasional*. Bandung: Remaja Rosdakarya.

- [15] Kai, J. (2015). "What the AIIB Means for the US-China Power Transition, The Diplomat" in <http://thediplomat.com/2015/03/what-the-aiib-means-for-the-us-china-power-transition/>, accessed December 18, 2019.
- [16] Bremmer, I. (2015). "China Challenges America's Financial Leadership, Time" in <http://time.com/3759639/china-america-financial-leadership/>, accessed December 18, 2019.
- [17] Chen, D. (2015). "Not so Fast: The TPP Might Be Good News for China. The Diplomat" in <http://thediplomat.com/2015/10/not-so-fast-the-tpp-might-be-good-news-for-china/>, accessed December 18, 2019.
- [18] Maverick, T. (2015). "TPP Versus AIIB: Obama's Uphill Battle. Wall Street Daily" in <http://finance.townhall.com/columnists/wallstreetdaily/2015/08/04/>, accessed December 18, 2019.
- [19] Yifei, X. (2015). "Competitive Mega-Regional Trade Agreements: Regional Comprehensive Economic Partnership (RCEP) vs. Trans Pacific Partnership (TPP)", University of Pennsylvania Scholarly Commons.
- [20] Arase, D. (2015). "What to Make of the Asian Infrastructure Investment Bank", International Politics, Hopkins-Nanjing Center: John Hopkins School of Advanced International Studies.
- [21] Ministry of Foreign Affairs PRC, "Creating new Landscape for the Diplomacy with Neighboring Countries and boosting the Asia-Pacific Regional Cooperation Foreign minister Wang Yi Talks about President Xi Jinping's Visit to Indonesia and Malaysia Attendance of the 21st APEC Economic Leaders Meeting", in http://www.fmprc.gov.cn/mfaeng/wjbg663304/wjbgz_663308/2461_663310/t1088099.shtml, accessed December 18, 2019.
- [22] Yuan, W. J. (2012). "The Trans-Pacific Partnership and China Corresponding Strategies." A Freeman Briefing Report.
- [23] Reis, J. A. (2015). "China's Dual Response to the US Pivot" in <http://www.atimes.com/atimes/China/CHIN-01-240114.html>, accessed December 18, 2019.
- [24] Kerry, J. (2014). "Remarks on US-China Relations.U.S. Department of state" in <http://www.state.gov/secretary/remarks/2014/11/233705.htm>, accessed December 18, 2019.
- [25] Maharani, Tiara. (2013). "pertumbuhan dan pembangunan Cina sebagai tanda kemunculan kekuatan dunia Baru dilihat dari Teori Power Transition", Universitas Indonesia, hlm 8
- [26] Mittler, Rana. (2011). "China modern menguasai dunia", terjemahan oleh Freddy Mutiara. Yogyakarta: Pustaka Pelajar
- [27] Viotti, Paul, R dan Mark V. Kauppi (1993). *International Relations Theory: Realism, Pluralism, Globalism, and Beyond*. Third Edition. New York: MacMillan Publishing Company.
- [28] Wangke, Humphrey. (2015). "Penguatan Pengaruh Tiongkok di Kawasan Asia Pasifik Melalui Pembentukan AIIB" *Info Singkat*, Vol VII (No.07): hlm.7
- [29] Alhumami, Amich, (2009), "Modernisasi ekonomi politik China", *Deprtement of Anthropology Univesity of Sussex*, http://www.unisosdem.org/article_detail.php?aid=11216&coid=4&caid=33&gid=2, accessed 3 April 2017
- [30] Beginda Pakpahan. (2018), "Indonesia dan perkembangan Ekonomi ASia-Pasifik" http://www.unisosdem.org/article_detail.php?aid=12794&coid=2&caid=30&gid=3 accessed 8 Desember 2016
- [31] Capling, Ann "Multilateralising PTAs in the Asia-Pacific Region: A Comparasion of the ASEAN-Australia-NZ FTA and the P4 Agreement", (2009), P. 8
- [32] Irhamsyah, Fahmi "China: Negara Komunis dengan Ekonomi Kapitalis 1949-1969", (2013), http://www.kompasiana.com/fahmi_elbantani/china-negara-komunis-dengan-ekonomi-kapitalis-1949-1969_55208992a33311104746cf97, accessed 2 April 2017
- [33] Kustia, Aa "Memahami Reformasi China" (2014), (http://www.unisosdem.org/article_detail.php?aid=1322&coid=3&caid=227&gid=2, accessed 2 April 2017
- [34] Muhammad Irfan, "Tujuan Trans Pacific Partnership", (2016), <https://plus.google.com/+MuhammadIrfan123/posts/i29N9rjUDQL> accessed 1 November 2016
- [35] Nugroho, Budi .Nurfajri "Pengaruh Global China, ACFTA, & posisi Indonesia", (2010), http://www.kompasiana.com/fajribudi/pengaruh-global-china-acfta-amp-posisi-indonesia_54ffc881a33311716850f8b8 accessed 5 April 2017
- [36] Nugroho, Priyanto "China Sibuk membeli dunia", (2010), http://www.kompasiana.com/priyanto_nugroho/china-sibuk-membeli-dunia_550017f8813311255efa7362 accessed pada 5 April 2017

- [37] Wei Lei, Zhang Hanlin, "Meiguo Zhudao Kua Taipinyang Huoban Guanxi Tanpan de Yitu ji Zhongguo de Duice", (*The Intensions of America's TPP Strategy and China's Responses*), Guoji Maoyi (International Trade), no. 9 (2010), P.54—58.
- [38] Zhenglong, Wu , "Tackling trans-Pacific trade, *China Daily*", (2010), http://www.chinadaily.com.cn/opinion/2010-09/16/content_11309929.htm. accessed 28 Maret 2017
- [39] Peerenboom, Randall "China Modernizes: Threat to the west or Model for the Rest?", *Oxford Univesity Press*, (2007) , P. 5
- [40] Wuryandari, Ganewati dan Tri Nuke Pudjiastuti. (2008). *Politik Luar Negeri Indonesia Di Tengah Pusaran Politik Domestik.Politik Luar Negeri Indonesia Era Orde Baru*.Yogyakarta : Pustaka Pelajar.
- [41] Morgado, M., Rolo, S., MacEdo, A., Pereira, L., Castelo-Branco, M.Predictors of uncontrolled hypertension and antihypertensive medication nonadherence(2010) *Journal of Cardiovascular Disease Research*, 1 (4), pp. 196-202.
- [42] Govindraj Akilandeswari, Arumugam Vijaya Anand, Palanisamy Sampathkumar, Puthamohan Vinayaga Moorthi, Basavaraju Preethi. "A Prospective Review on Phyto-Pharmacological Aspects of *Andrographis paniculata*." *Systematic Reviews in Pharmacy* 10.1 (2019), 15-19. Print. doi:10.5530/srp.2019.1.3
- [43] Abraham, B.B., Anitha, G.Designing of Lab View Based Electrical Capacitance Tomography System for the Imaging(2012) *Bonfring International Journal Power System Integrated Circuits.*, 2 (2), pp. 1-6
- [44] Tonello, L., Cocchi, M.The cell membrane: Is it a bridge from psychiatry to quantum consciousness?(2010) *NeuroQuantology*, 8 (1), pp. 54-60.
- [45] D. Senthil, G. Suseendran" "Data Mining Techniques Using Time Series Research" , *International Journal of Recent Technology and Engineering*, Vol.8,(2S11), September 2019, pp. 121-129 , DOI: 10.35940/ijrte.B1020.0982S1119
- [46] M. Lim, A. Abdullah, N. Jhanjhi, M. Khurram Khan and M. Supramaniam, "Link Prediction in Time-Evolving Criminal Network With Deep Reinforcement Learning Technique," in *IEEE Access*, vol. 7, pp. 184797-184807, 2019. doi: 10.1109/ACCESS.2019.2958873