



Investigation of Downtime Cost Analysis for Residential Building using SPSS

Jayesh Ravindra Sandecha¹, Prof. Rahul D. Shinde²

PG Student, RMD Sinhgad School of Engineering, Pune, India¹

Assistant Professor, Department of Construction Management, RMD Sinhgad School of Engineering, Pune, India²

ABSTRACT: Cost increases schedule can occur because of a Variety of causes for different types of projects. Calendar is In the building industry, very necessary for reducing and Controlling project time break. Yet most of the Delays in construction projects in India have been characterized by Time overrun. Transportation system Development of public highway projects in particular remains an Core method for achieving newly launched expectations Economic Values of Indian Policy. All the same, the Importance and effect of this industry on the national sector Economy, worries are often raised about the poor. These projects have performed in terms of time , cost and quality That made the construction of these projects directly subject to Delay plans, excess costs and problems with price shortfalls. The purpose of this study is to determine the critical factors affecting Damage overrun and get statistical models use several models Regression, and neural artificial networks. Versions of Regression are obtained using Program SPSS. The study is also Sets out that the technical personnel of the contractor is inadequate and ineligible to carry out the project and lack of contact Both building groups, and unavailability of Experienced staff in the departments of owners and contractors during the principal factors responsible for the execution of the project Causing delay in timeline, cost overrun and quality deficiencies Accordingly. What's more, suggestions to avoid and Overcoming the negative effects of the construction industry.

KEYWORDS: Downtime cost, planned stoppage, Maintenance optimization, Performance measurement systems, and Indian manufacturing companies.

I.INTRODUCTION

Output quality and effectiveness are amongst the top business priorities in today's dynamic manufacturing industry. Production equipment thus becomes the central focus of interest, as it is the backbone of the manufacturing process and the key productivity performance indicator. Outstanding performance requirements force companies to consider substantially reducing the downtime frequency of their machines and its consequential costs. Downtime of the equipment is due to planned or unplanned stops. However, the unplanned stops caused by the occurrence of failures and disturbances are the most common unexpected factors that affect the overall productivity without trivial effect. Moreover, this interrelation between downtime events and productivity lies in the spirit of economic connotation, in which cost and profit variables are inversely proportional by decreasing downtime costs and thus increasing the profit from production. To this end, effective and defined costing methods are required to quantify and track each single cost disbursed during the stoppage juncture in order to minimize the downtime costs. All activities and resources which have been depleted while retrieving the function of the production equipment should be allocated based on their actual costs. Costing method's primary function is to identify areas of high cost savings, and from which managers are to introduce changes. One explicit trade off, for example, lies between costing methods and maintenance applications. Productive maintenance endeavors to minimize downtime events and therefore costs. On the other hand, by assessing the efficiency of the adopted maintenance policy, proper costing method can be of much benefit to maintenance managers. In addition, it allows series mathematical modeling and simulation to be used as an input to optimize the maintenance strategy, especially the preventive maintenance strategy. A real case study is therefore very urgently required to address this subject in a rational way. Accordingly, the Indian manufacturing industry was chosen for this issue as it anticipated significant technical advancements within manufacturing establishments. In addition, that development's infrastructure was based on the installation of robotic systems. Nevertheless, these advanced and complex systems subjected to repeated shutdowns in which some of these shutdowns occur have a major effect on production outages and hence lost profit[3]. The case of malfunctioning equipment and its reconstruction is very expensive and needs many resources and expenditures throughout the budget. For those reasons, the



Indian manufacturing industry is considered a good option to explore in particular the issues related to downtime costs and reduction analysis.

II.LITERATURE SURVEY

Pritam Mali A. And. Al.[1] proposed the Temporary Worker's Hardware Approach and Equipment Management System have a significant impact on a company's profit, particularly for contract workers with a vast interest in equipment. Hardware costs in developing structural design tasks can run from 25-40 per cent of the aggregate cost of the venture. Data given in this paper about how the arranged and appropriate maintenance is imperative for better creation of development gear. The information given is use of nearby gear from month to month, and different purposes behind misfortunes in the creation of hardware development. Reasonable arrangement, collection, procurement, establishment, service and maintenance of development hardware assumes an important part in technology projects under way.

Prasannasange. A. And. Al. [2] Development gear assumes an awesome critical share in the development industry, costing up to 36 percent of the aggregate development expansion costs, because hardware support has not been properly considered and this adds up to around 40 percent of aggregate development expands overwhelming costs. The aim of this examination is to ensure that development specialists recognize and hold fast to appropriate methodology of gear upkeep as a successful part of the productivity of development ventures. A few polls were prepared to use this data for the evaluation of elements and circulated between development experts. Point of this paper is to reduce downtime, achieve ideal gear utilization and at least cost increase generation.

Amir H. B. And. Al.[3] suggested a systemic approach to idle time reduction would dramatically improve the output of building equipment over its lifespan, result in higher overall productivity and eventually protect public health and the environment. To this end, this paper describes research aimed at designing a framework for estimating the idle times of heavy equipment during a construction project. A distributed sensor network is implemented to communicate and present measurements of idle times and output levels, and when idle time thresholds are reached, project managers and field operators notify. The designed user interface includes a graphical representation of the site layout to visualize the equipment status in real-time in the project management and decision-making tasks support. As the project progresses, collected data will also be used to determine the energy consumption and CO2 emission levels. Using simulation models, specific operating approaches are evaluated from an equipment emission and idle time point of view.

Proposed by Rickey A. Cook[4] The aim of this review was to build a crane and prepare for overwhelming hardware maintenance to improve well-being and productivity. XYZ Construction has no methodical approach to keeping its cranes and substantial hardware up. Their manner of dealing with hardware upkeep could put specialists and property at risk. This organization understands the potential for misfortune and thinks that enhancing their maintenance plan will help to alleviate this problem. The paper used three phases to set up a support plan to finish this.

Naskoudakis Ilias et. Al.[5] Extensive writing collections have been dedicated to research on hardware development. Numerous topics were explored which dissected, which accounted for various conclusions. Nevertheless, inquiry into papers distributed with respect to building hardware is deeply divided, and there is a lack of detailed analysis and arrangement. Thereafter, a full comprehension of the topic is impossible, nor is the prediction of any potential impact on the study. A meta-research of the most recent diary papers committed to development apparatus would not only portray the fields that were focused on scholastic research, but would also reveal potential crevices for future research. Enhancement, support / downtime, efficiency, mechanical autonomy and computerization, administrator capacity, development, and environment are solved and discussed in the ebb and flow review, through a precise survey of scholastic writing distributed over the last decade, primarily distinguished through online databases. The outcome of this paper will encourage future scientists to build a variety of advance learning on development hardware and its potential capabilities, and provide future research headings on this issue.

G.D. Proverbs and. Al. [6] Recognizing eighteen common issues facing the UK development industry following a nitty gritty writing audit, Consequently, the gravity of these issues as opened by experienced executives of UK development organizations, obtained through a poll review, is displayed. Discoveries reveal that the two most severe issues are thought to be the business's poor image and notoriety, aligned with a 'cattle rustler manufacturers' dominance. Changes in configuration are positioned third, trailed by late installations, time constraints and reliance on focused methodology for offering. In view of these perspectives, it is prescribed that the need of the business should be to nullify corrupt firms in the

area of residential repair , maintenance and change, thus driving a more expert picture forward. This should be combined with an effort by all representatives of the establishment to annihilate the business' present antagonistic existence. A long-haul vital arrangement is needed if **in the new millennium such non-specific, extensive issues are to be adequately tendered.**

Urmila A Mahadik [7] Given all the difficulty, the construction venture will fluctuate from highly profitable to barely justified, and here and there wind up costing the contract worker more than he or she gets paid to complete it. The point of venture control in the construction industry is to ensure that the undertakings are completed on schedule, within the budget plan and execute certain venture exercises. Time and cost are two fundamental concerns that increase cost-reduction strategies' significance. Cutting development costs is a consistent goal for the development industry. One way of reducing the cost of production is to establish innovative inventions and even strategies to improve profitability. This paper deals with forms of spending, factors affecting the spending of undertakings and, in addition, exchanges on achieving reasonable time and expense implications by applying cost-reduction techniques

Tsado and. Al.[8] Development hardware assumes an extraordinarily noteworthy share in the development industry, costs as high as 36 percent of aggregate development expand costs, although gear support has not been adequately considered and this adds up to around 40 percent of aggregate development expand overwhelming costs. The aim of this examination is to ensure that development professionals recognize and stick to legitimate methodology of hardware support as a powerful part of development venture benefit. The review used the Research Survey Research Approach (ISRA) strategy to evaluate this target. The distinctive simple, but strongly connected, indispensable methodologies of compelling administration of development gear were distinguished. An aggregate number of sixty-five (65) highly organized polls was conducted by eight different development organizations with characteristics of A, B, C, D, E, F, G and H to gather quantitative and subjective information on how equipment support was cared for in some haphazardly selected development organizations located in Abuja, and surrounding Minas. As a result of their core overwhelming technology projects exercises the contextual investigation regions were chosen. Fifty-seven (57) were recovered and broken down, which speaks to 87.7 percent of aggregate polls. The information gathered was subject to the technique of recurring investigations. The review found that 51.5 percent of the surveyed development organizations do not add a high need for gear upkeep, and this significantly contributed to the expanded development cost invasion resulting from hardware breakdown. Dependability of development gear relies incredibly on the support. Development experts are suggested to bear the opportunity cost of gear upkeep technique as an important aspect of development venture administration. This will help lower costs, the likelihood of unforeseen disappointment, upgrade usage and limit hardware downtime, thereby building profitability for the overall development ventures.

D. Phadatare and B. Al.[9] The inventory management system and equipment structure have a huge effect on the productivity of temporary staff with a greater interest in equipment. The cost of hardware can vary from 25-40 per cent of the aggregate cost of the venture in structural design development. The aim of this venture was to study how the arranged and suitable support is critical for better generation development gear. Here, the knowledge investigation is month-to-month hardware usage on location and different reasons behind the misfortunes in the generation of production equipment. If additional development hardware is conveyed to the development site then it is important to assess whether a venture can be done in a given period. The main motivation behind this review is to evaluate the general development hardware activity stream that impacts the efficacy of development operations. This paper will analyze the goals and advantages of implementing Complete Efficient Maintenance, and will also concentrate on measuring the overall effectiveness of the equipment in construction equipment. In large-scale construction operations the standard Equipment's require for Effective operations, particularly in the area of infrastructural development. This is the true picture of large construction companies whose successful physical activity depends on men , materials and sophisticated machinery that will produce operational output during a given period of use. Thus, the efficiency of construction machinery is a major factor that differentiates construction firms in terms of heavy and light construction. Building industries are determined to improve and optimize their productivity in today's era of intense global competition, to remain competitive. Overall Equipment Effectiveness (OEE) of a machine plays an important role where performance and product quality are of key importance to the enterprise. The OEE aimed to minimize the breakdowns, increase performance and quality rates and thus improve the machine 's effectiveness. The machine availability rate, machine output rate, and product quality rate are considered as parameters, thus optimizing a production system's Overall Equipment Effectiveness (OEE). The aim of the work is to improve the overall effectiveness of the equipment (OEE) at a construction company.



Ayane Nilesh et. Al.[10] This paper discusses the goals and advantages of implementing Complete Efficient Maintenance and also focuses on measuring the overall effectiveness of the equipment in construction equipment. In large-scale construction operations the standard Equipment's require for Effective operations, particularly in the area of infrastructural growth. This is the true picture of large construction firms whose productive physical activity depends on people, materials and sophisticated machinery that will generate operational production over a given period of use. Thus, the efficiency of construction machinery is a major factor that differentiates construction firms in terms of heavy and light construction. Building industries are determined to improve and optimize their productivity in today's era of intense global competition, to remain competitive. Overall Equipment Effectiveness (OEE) of a machine plays an important role where performance and product quality are of key importance to the enterprise. The OEE aimed to minimize the breakdowns, increase performance and quality rates and thus improve the machine 's effectiveness. The system availability rate, system output rate and product quality rate are considered as parameters when optimizing the overall Equipment Efficiency (OEE)

Pragush. V. P [11] Building equipment is a major resource in the construction process of a construction project. When a contractor owns equipment, it forms a sizable portion of its assets that require proper management practices. Good construction project management must pursue the efficient use of labor, materials and equipment with vigor. In recent decades the use of modern technology and creative approaches has made major improvements in construction technologies possible. Selecting the appropriate type and size of building equipment often affects the amount of time and effort required, and thus the productivity of a project on the job site. Thus, it is important for site managers and construction planners to be familiar with the characteristics of the most commonly used major types of equipment in construction. This thesis is to study equipment management practices in Construction Industry and present the contractor's most popular practices and compare equipment management policies with a construction industry case study. The required data were gathered through a structured questionnaire. Based on their annual volumes of work the contractors were classified into three classes. Using the SPSS program, the data collected is analysed. Management policy elements were cross-tabulated against contractors' grades in order to identify potential substantial variations in the activities of the contractors. Hypotheses were tested on some expected outcomes. Finally, the findings of this study were compared with survey findings to identify significant commonalities and differences in equipment management practices

Mr. Pratik Desai[12] This paper will review the objectives and benefits of implementing Total Productive Maintenance and will also focus on calculating the overall effectiveness of the equipment in the construction equipment. In construction activities on an immense scale, efficient operations require the standard equipment, particularly in the area of infrastructural development. This is the true picture of large construction companies whose physical lucrative activities rely on men , materials and sophisticated machinery that will generate operational output during a specific period of use. Consequently, the efficacy of construction machinery is a major consideration which denounces construction companies in terms of heavy construction and light construction. In today's agonizing era of global rivalry, construction industries are driven to advance and alter their competitiveness to remain competitive. Complete Facilities a machine 's output (OEE) plays a crucial role where performance and product characteristics are of main importance to the firm. The OEE aimed to reduce breakdowns, increase output and quality levels and thereby improve machine efficiency. The machine availability rate, machine performance rate, and product quality rate are considered parameters, while a management system's Overall Equipment Effectiveness (OEE) is escalated.

III.RESEARCH METHODOLOGY

SPSS is a widely used program for statistical analysis in social science. It is also used by market researchers, health researchers, survey companies, government, education researchers, marketing organizations, data miners, and others. The original SPSS manual has been described as one of "sociology's most influential books" for allowing ordinary researchers to do their own statistical analysis.[4] In addition to statistical analysis, data management (case selection, file reshaping, creating derived data) and data documentation (a metadata dictionary was stored in the data file) are features of the base software.

The below questionnaire we follow the proposed evaluation, around 25 questions are there and each respondents provides rating out Of 5.

- | | | |
|---|---|----------|
| 1. Incomplete drawing given by the consultant | • | Disagree |
| • Strongly disagree | • | Neutral |



- Agree
- Strongly agree
- 2. Late Issuance of instructions by the consultant
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 3. Mistakes and discrepancies in design documentation?
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 4. Unclear and inadequate details in drawings?
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 5. Delay in quality assurance / control?
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 6. Late in approving and receiving of complete work?
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- Project Related Delays
- 7. Delay due to the effects of subsurface conditions?
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 8. Unavailability of utilities in site?
 - Strongly disagree
 - Disagree
- Neutral
- Agree
- Strongly agree
- 9. Accident during construction?
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 10. Problem with neighbours in the project location?
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 11. Limited space of construction Area?
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 12. Delay in shifting of long distance to borrow pits?
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 13. Quantity increase over contract during Construction?
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- Cost Influencing Parameters
- 14. Terrain condition affect the cost overrun?
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 15. Soil & rock suitability / drill ability?
 - Strongly disagree



- Disagree
 - Neutral
 - Agree
 - Strongly agree
16. Material related problem (Transportation, Cost, Handling etc.)
- Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
17. Payment related problem from owner side
- Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
18. Poor communication between construction parties
- Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
19. Climatic condition
- Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
20. Lack of experience & knowledge of construction parties
- Strongly disagree
 - Disagree
 - Neutral
 - **Strongly agree**
- Agree
 - Strongly agree
21. Involvement of more No: of parties (contractor) in single project
- Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
22. Lack of efficiency of contractor to achieve time goal of project?
- Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
23. Thickness of various layers in case of flexible pavement (WBM, BBM, BM)
- Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
24. Conflict among project participants
- Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
25. Unreliable sources of materials on the local market?
- Strongly disagree
 - Disagree
 - Neutral
 - Agree

IV.RESULTS AND DISCUSSION

Factor Analysis (FA) is an exploratory technique applied to a set of observed variables that seeks to find underlying factors (subsets of variables) from which the observed variables were generated. For example, an individual's response to the questions on a college entrance test is influenced by underlying variables such as Intelligence, years in school, age, emotional state on the day of the test, amount of practice taking tests, and so on. Table 1 shows the communalities of the study

Evaluation of 25 questions of various respondents

Question	Σ of respondents	A	N	RII	Weight
Incomplete drawing given by the consultant	180	5	52	$180 / 5*52$	0.69
Late Issuance of instructions by the consultant	178	5	52	$178 / 5*52$	0.68
Mistakes and discrepancies in design documentation.	169	5	52	$169 / 5*52$	0.65
Unclear and inadequate details in drawings.	169	5	52	$169 / 5*52$	0.65
Delay in quality assurance / control?	182	5	52	$182 / 5*52$	0.70
Late in approving and receiving of complete paper work w.r.t Drawings and Documentations.	173	5	52	$173 / 5*52$	0.67
Delay due to the effects of subsurface conditions?	166	5	52	$166 / 5*52$	0.64
Unavailability of utilities in site?	159	5	52	$159 / 5*52$	0.61
Accident during construction?	179	5	52	$179 / 5*52$	0.69
Problem with neighbours in the project location?	168	5	52	$168 / 5*52$	0.65
Limited space of construction Area?	174	5	52	$174 / 5*52$	0.67
Delay in shifting of material from long distance to borrow pits?	191	5	52	$191 / 5*52$	0.73
Quantity increase over contract during Construction?	192	5	52	$192 / 5*52$	0.74
Terrain condition affect the cost overrun?	185	5	52	$185 / 5*52$	0.71
Soil & rock suitability / drill ability?	192	5	52	$192 / 5*52$	0.74
Material related problem	183	5	52	$183 / 5*52$	0.70



(Transportation, Cost, Handling etc.)					
Payment related problem from owner side	188	5	52	$188 / 5 * 52$	0.72
Poor communication between construction parties	175	5	52	$175 / 5 * 52$	0.67
Climatic condition	178	5	52	$178 / 5 * 52$	0.68
Lack of experience & knowledge of construction parties	181	5	52	$181 / 5 * 52$	0.70
Involvement of more No: of parties (contractor) in single project	181	5	52	$181 / 5 * 52$	0.70
Lack of efficiency of contractor to achieve time goal of project?	189	5	52	$189 / 5 * 52$	0.73
Thickness of various layers in case of flexible pavement (WBM, BBM, BM)	170	5	52	$172 / 5 * 52$	0.65
Conflict among project participants	181	5	52	$181 / 5 * 52$	0.70
Unreliable sources of materials on the local market?	172	5	52	$1720. / 5 * 52$	0.66

Table 1

Table 1 shows the interesting to compare the causes as perceived by consultants and contractors. Most often, one party were blaming the other. Two of the top causes perceived common between consultants and contractors are: sub-contractor and site management. The consultants blaming contractor’s improper planning, contractor’s mistakes and contractor’s experience as the important causes of increased cost in downtime.

Major causes which ranked at no.1 position where:

- **Soil & rock suitability / drill ability?**
- **Quantity increase over contract during Construction.**

V.CONCLUSION

The research intended the views among customers , consultants and contractors on the relative significance of factors causing delays in construction projects. Organizations and project teams that recognize the factors that can contribute to, or cause, scheduling delays and cost growth, and take steps to reduce or eliminate their impact, are better positioned for project success. Indeed, some of these variables, such as discrete risk incidents, are well known, while others are more subtle, such as team conflict internally or with a supplier. Have a pause and team trainings or after-action evaluations to analyze the reasons and implications for significant scheduling delays and cost overruns on projects when there are



significant adverse events.

Implement systematic system preparation and management procedures that can be replicated and which can be used by the whole company. As **Soil & rock suitability / drill ability, is Geographical perspective and thus human action is less effective towards its nature and ability, only proper estimation after geographical survey can minimize the delay**

Talking about another major cause Quantity increase over contract during Construction. We need to have

- 1. Proper Evaluation and Estimation.**
- 2. Less change of decisions from management level.**
- 3. Monitoring of any breakages before and after installing/applying of any product.**

REFERENCES

1. Mali Pritam A. "Effectof Construction Equipment On Production In Building Construction Project" International Journal Of Engineering Sciences & Research Technology June 2015 Issn: 2277-9655 (I2or), Publication Impact Factor: 3.785
2. Prasannasangeetha.A "Equipment Management In Construction Sector" International Journal Of Science And Engineering Research (Ij0ser), Vol 3 Issue 6 June -2015
3. Amir H. B. "Simulation-Based Evaluation Of Fuel Consumption In Heavy Construction Projects By Monitoring Equipment Idle Times" Proceedings Of The 2013 Winter Simulation Conference R. Pasupathy, S.-H. Kim, A. Tolk, R. Hill, And M. E. Kuhl, Eds
4. Rickey A. Cook "A Crane And Heavy Equipment Maintenance Plan For Improving Safety And Efficiency" The Graduate College University Of Wisconsin-Stout December 1999
5. IliasNaskoudakis "A Thematic Review Of The Main Research On Construction Equipment Over Recent Years" 47(2), Pp. 110-118, 2016 Doi: 10.3311/Ppar.10384 Creative Commons Attribution
6. D.G. Proverbs, G. D. Holt And H. Y. Cheok " Construction Industry Problems: The Views Of Uk Construction Directors" Built Environment Research Unit, School Of Engineering And The Built Environment, University Of Wolverhampton, West Midlands, Uk, Wv1 1sb, Uk.
7. Urmila A Mahadik "Cost Reduction In Construction Projects" International Journal Of Engineering Technology, Management And Applied Sciences Www.Ijetmas.Com September 2015, Volume 3, Special Issue, Issn 2349-4476
8. Tsado, TheophilusYisa" Equipment Maintenance: An Effective Aspect Of Enhancing Construction Project Profitability" International Journal Of Engineering Science Invention Issn (Online): 2319 – 6734, Issn (Print): 2319 – 6726 Www.Ijesi.Org Volume 3issue 4 | April 2014 | Pp.34- 41
9. D. B. Phadatare "Impact Of Construction Equipment's On Building Site Productivity" International Journal Of Civil Engineering And Technology (Ijciet) Volume 7, Issue 4, July-August 2016
10. Mr. NileshAyane "Review Study On Improvement Of Overall Equipment Effectiveness In Construction Equipment's" 2015 Ijedr | Volume 3, Issue 2 | Issn: 2321-9939
11. Prajeesh. V. P "Management Of Equipment & Machinery In Construction" Ijiset - International Journal Of Innovative Science, Engineering & Technology, Vol. 3 Issue 5, May 2016.
12. Mr. Pratik Desai "Overall Equipment Effectiveness In Construction Equipments"International Research Journal Of Engineering And Technology (Irjet) E-Issn: 2395 -0056 Volume: 04 Issue: 01 | Jan -2017 Www.Irjet.Net P-Issn: 2395-0072"