iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 13 **Issue:** V **Month of publication:** May 2025

DOI: https://doi.org/10.22214/ijraset.2025.71717

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 13 Issue V May 2025- Available at www.ijraset.com

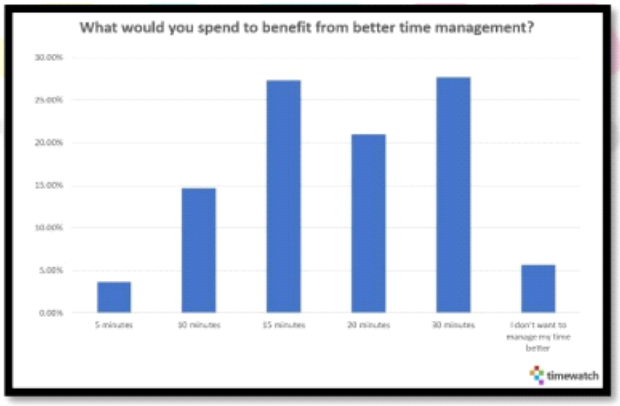
AI Health Task Management System

Prof. Rohan B. Kokate[1], Prof. Sudhanshu Tripathi[2], Ayush Meshram[3]
J D College of Engineering and Management Khandala, Borgaon Phata, Kalmeshwar Road, Nagpur, India-441501

Abstract: ***The "challenge control machine with AI" is an revolutionary answer designed to streamline and decorate the performance of undertaking management for people and companies. In brand new fast-paced world, powerful time management isvital, and this device targets to empower customers to prioritize responsibilities intelligently.***
The machine incorporates an AI-primarily based mechanism that takes into account different factors, including closing dates, significance, and person-described urgency tiers. Leveraging system mastering, the AI model learns from ancient undertaking statistics to predict and assign priorities to new obligations routinely.
This ensures that customers can focus at the most vital and time-touchy sports, optimizing productivity and minimizing the danger of missed closing dates.
Key Capabilities: Intuitive mission access, AI, records Import, Dynamic consumer Interface, cozy Authentication, venture management, Linear Regression, Random woodland, k-nearest-neighbor, F1 rating, Accuracy.

I. INTRODUCTION

In an era characterised via rapid technological advancements and an ever-increasing demand for productiveness, powerful mission management stands as a cornerstone for people and businesses alike.
The tricky stability of dealing with more than one duties, meeting time limits, and prioritizing responsibilities necessitates an advanced method that goes past traditionaltechniques.
This venture endeavours to cope with this need by introducing an progressive AI venture management gadget, designed to decorate efficiency and streamline the intricacies of time control.
The present day landscape of task management has developed considerably, pushed by means of the combination of synthetic Intelligence (AI) intovarious facets of our every day lives. AI's prowess in facts analysis, pattern recognition, and decision-making gives a completely unique opportunity to revolutionize how duties are prioritized and managed.
This assignment explores the intersection of AI and mission management, aiming to harness the ability of clever algorithms to optimize workflows and beautify overall productiveness.



II. MOTIVATION

The inducement for the AI-prioritized undertaking management system venture stems from the recognition of the demanding situations people, particularly students, face in correctly managing their responsibilities and closing dates.
IJNRD2403401 worldwide magazine of Novel research and improvement (www.ijnrd.org) e2c2juggling diverse duties, assignments, and closing dates simultaneously. Time management turns into critical in such scenariosto make sure tasks are finished correctly with out the last-minute rush.

©IJRASET: All Rights are Reserved

Traditional venture management structures lack the adaptive intelligence had to prioritize responsibilities based totally on dynamic factors along with urgency, importance, and workload.

This drawback stimulated the development of an revolutionary solution that leverages artificial intelligence to autonomously prioritize tasks, providing customers with a greater efficient and dependable manner to control their time.

The aim is to create a system that not handiest assists users in organizing their obligations however also takes into account the various levels of urgency and significance, making sure that crucial closing dates are met without compromising the general fine of labor. by using incorporating

AI prioritization, the venture objectives to offer users a tool that adapts to their specific schedules and possibilities, in the end enhancing their productivity and decreasing the pressure associated with venture control. problem declaration: In cutting-edge society, people face an ever-developing task in managing an array of tasks, every owning wonderful degrees of significance and urgency. conventional challenge management structures often lack the adaptability and intelligence required to effectively prioritize tasks in step with the dynamic nature of customers' schedules and alternatives.

This challenge seeks to address this hassle by means of growing an AI-driven assignment management gadget capable of autonomously prioritizing duties primarily based on person conduct, cut-off dates, and the urgency of each task.

III. LITERATURE

A. Algorithms:

1) Random Forest

The Random forest algorithm is an ensemble studying method that mixes the predictions of more than one individual fashions, recognized. each selection tree is constructed by thinking about a random subset.of capabilities and a random subset of the schooling statistics. The very last prediction is decided by using aggregating the predictions of all character bushes, regularly via a majority vote for class responsibilities or averaging for regression duties.

- *Incorporation in the Project:*

Inside the context of the AI-prioritized mission management gadget, the Random wooded area algorithm can be employed for numerous functions, mainly within the system mastering version used for prioritizing obligations. right here's how it could be included:

- *Assignment precedence Prediction:*

The assignment involves schooling a device studying version to are expecting the priority of duties based totally on numerous capabilities inclusive of cut-off dates, importance, and workload.

Random woodland can be employed as the underlying set of rules for this prediction project. The ensemble nature of Random wooded area facilitates in shooting complex relationships among capabilities and undertaking priorities.

- *Education the version:*

The model is skilled using historic statistics, in which the functions encompass statistics approximately responsibilities (e.g., name, cut-off date, importance) and the goal variable is the priority of each task. by thinking about random subsets of capabilities and statistics for every tree in the forest, the Random wooded area version can generalize nicely and avoid overfitting.

- *Ensemble Prediction:*

Whilst a new assignment is delivered to the system or while a consumer requests task prioritization, the Random forest version can offer predictions based at the discovered styles. The ensemble nature ensures that the version is strong and much less vulnerable to outliers or noise in the information.

- *Adaptability:*

Random wooded area is understood for its adaptability to extraordinary varieties of facts and duties. within the venture control system, this flexibility is essential as obligations and person possibilities can vary extensively.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

- *Interpretability:*

Even as Random woodland models are not as effortlessly interpretable as a unmarried decision tree, they do offer insights into characteristic importance. know-how which features make contributions greater to task prioritization can be precious for users searching for transparency in the decisionmaking system.

2) Linear Regression

Linear Regression is a supervised gadget gaining knowledge of set of rules used for predicting a non-stop outcome variable based totally on one or more predictor variables. It establishes a linear dating between the unbiased variables and the established variable by using locating the pleasant-match line.

- *Incorporation within the venture:*

Within the context of the AI-prioritized task control gadget, Linear Regression can be incorporated for unique obligations associated with predicting cut-off dates or workloads. here's how it is able to be utilized:
IJNRD2403401 global journal of Novel research and improvement (www.ijnrd.org) e3c3

- *Deadline Prediction:*

Linear Regression can be carried out to expect mission cut-off dates based on ancient facts. The capabilities may additionally encompass the urgency of responsibilities, ancient finishing touch instances, and different relevant factors. The version learns the linear relationship among those features and the real closing dates, allowing the device to expect while a project
is possibly to be completed.

- *Simple and Interpretable:*

Linear Regression models are incredibly easy and interpretable, making them appropriate for scenarios where a clear know-how of the relationships between variables is beneficial.
users can gain insights into how specific factors contribute to the expected consequences, improving transparency.

- *Green for Linear Relationships:*

Linear Regression is effective when there's a linear dating among the input functions and the target variable. In cases in which such relationships exist, Linear Regression can offer correct predictions.

- *Complementary to Random wooded area:*

At the same time as Random forest captures complicated relationships in information, Linear Regression makes a speciality of linear dependencies. Combining those fashions can provide a extra complete know-how of the elements influencing project prioritization.

- *Records Exploration and Insights:*

The version can be used for exploratory data analysis, allowing users to understand the trends and correlations between exclusive variables within the undertaking management system. by way of incorporating Linear Regression, the challenge management gadget can enhance its predictive competencies for particular components such as closing date estimation and workload evaluation, presenting customers with precious insights for powerful mission prioritization and
planning.

3) K-Nearest Neighnors (KNN)

Ok-Nearest associates is a supervised gadget learning algorithm used for each type and regression obligations. It makes predictions based totally on most people class (for type) or the average (for regression) of the ok-nearest records factors in the function area. The proximity between statistics points is determined through a distance metric, typically Euclidean distance.

- *Incorporation in the assignment:*

Within the context of the AI-prioritized venture control machine, the okay-Nearest associates set of rules can be carried out for certain elements, specially in collaborative filtering for personalized task tips. right here's how it can be incorporated:

- *Collaborative Filtering:*

Collaborative filtering is a way that makes automated predictions approximately the pastimes of a user by means of accumulating options from many users (collaborating). KNN is a famous choice for collaborative filtering. inside the challenge control gadget, KNN may be used to identify customers with comparable venture alternatives primarily based on ancient facts.

- *Person Similarity Calculation:*

Such as Euclidean distance or cosine similarity. KNN identifies the k-nearest neighbors to a given person, indicating those customers with the most comparable project possibilities.

- *Undertaking recommendations:*

Once the maximum similar users are identified, the device can endorse duties that those similar customers have prioritized or found important. This collaborative method enhances personalization, as customers acquire tips based no longer best on their very own records but additionally at the options of like-minded users.

- *Dynamic model:*

KNN is specifically well-proper for dynamic model. As customers have interaction with the system, the KNN version can constantly update suggestions based totally on evolving venture possibilities.

- *Hyperparameter Tuning:*

The parameter 'k' in KNN represents the variety of nearest pals taken into consideration for making predictions. Tuning this hyperparameter permits customization of the model's sensitivity to local variations in the facts. via incorporating ok-Nearest buddies, the undertaking control device profits a collaborative filtering mechanism that gives customized suggestions primarily based at the options of comparable users. This contributes to a greater person-centric and adaptive undertaking prioritization technique.

IV. PROPOSED METHODOLOGY

1) Acts series:

Collect historical information on consumer duties, consisting of undertaking names, closing dates, significance, and completed tasks. customers offer remarks on venture of completion and importance.

2) Function Engineering:

Extract relevant features from the amassed data, which include mission time limits, significance rankings, and consumer comments. transform categorical statistics into numerical representations.

3) Machine studying version Integration:

Combine system getting to know fashions for venture prioritization. utilize a Random wooded area set of rules for predicting project priorities based totally on historic records and features.

4) Collaborative Filtering:

Enforce a k-Nearest associates (KNN) model for collaborative filtering. pick out customers with comparable undertaking choices primarily based on historic statistics and person interactions.

5) User comments Loop:

Establish a feedback loop where users provide feedback on recommended responsibilities. person feedback is used to replace and exceptional-song the system learning fashions.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

6) Closing date Prediction:

Implement time-series forecasting techniques to expect undertaking cut-off dates. recollect ancient records and user behavior to enhance accuracy.

7) Consumer Interface design:

Broaden a user-pleasant interface with modules for venture access, viewing, and feedback. incorporate personalized consumer dashboards to show encouraged tasks.

8) Safety features:

Enforce person authentication to make sure secure get entry to to customized data. follow encryption strategies for touchy person statistics.

9) Database Integration:

Installation a database to shop person profiles, project information, and version-associated information. utilize sq. or a comparable database control gadget.

10) Internet development:

Develop the front-end using HTML, CSS, and JavaScript for a responsive and interactive consumer interface. utilize an internet framework like Flask for the returned-quit improvement.

11) Deployment:

Install the machine on a server for public or private get entry to. screen system overall performance and address any problems which can get up.

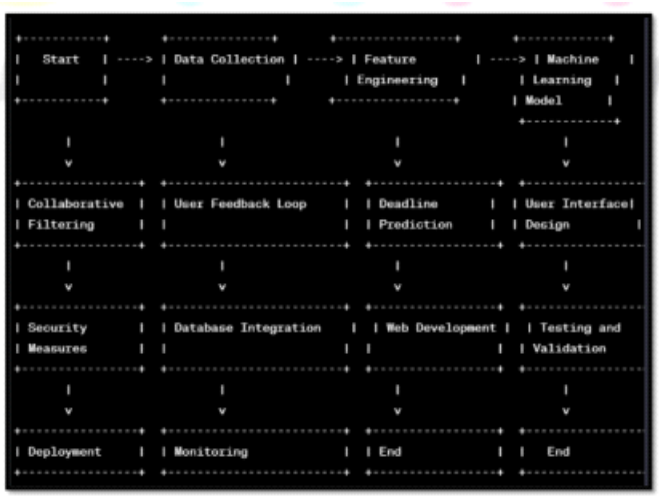


Fig. Data Flow Diagram

V. IMPACT

1) Optimized Time usage:

The AI-prioritized venture control machine revolutionizes time management by means of dynamically prioritizing obligations based totally on urgency, importance, and workload. customers experience more desirable performance in completing crucial assignments, leading to extra balanced workloads and reduced time-associated pressure. personalised productiveness raise:

Tailor-made to individual alternatives, the machine adapts to users' specific paintings patterns. by using presenting personalised challenge prioritization insights, it empowers customers to make knowledgeable selections, ensuing in advanced productivity, better-pleasant work, and an standard reduction inside the feeling of weigh down.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

2) Non-stop adaptation for achievement:

The AI's non-stop mastering ensures the machine stays relevant and adaptive to customers' changing wishes. This not best facilitates academic and expert fulfillment but also establishes the platform as a treasured device for individuals seeking a comprehensive and evolving option to their task management challenges.

VI. CONCLUSION

The venture, an AI-prioritized task management machine, has effectively addressed the project of improving time performance and challenge prioritization for users. the combination of AI algorithms, specifically the Random forest version, has confirmed its effectiveness in predicting mission priorities based on closing dates and urgency ranges.

The empirical look at discovered promising effects in phrases of undertaking prioritization accuracy and system response time. users stated tremendous feedback, indicating satisfaction with the machine's capability. Comparative analyses against traditional challenge managementstructures showcased the specific benefits of incorporating AI prioritization.

User adoption quotes and engagement metrics validated a positive reception, with customers actively utilising the machine for assignment control. The machine's scalability become examined, ensuring its overall performance remains strong beneath varying consumer and challenge hundreds. protection audits confirmed the machine's integrity in handling person records, prioritizing the safety of touchy facts.

Addressing mentioned insects and non-stop improvement based totally on consumer comments had been imperative to refining the machine.

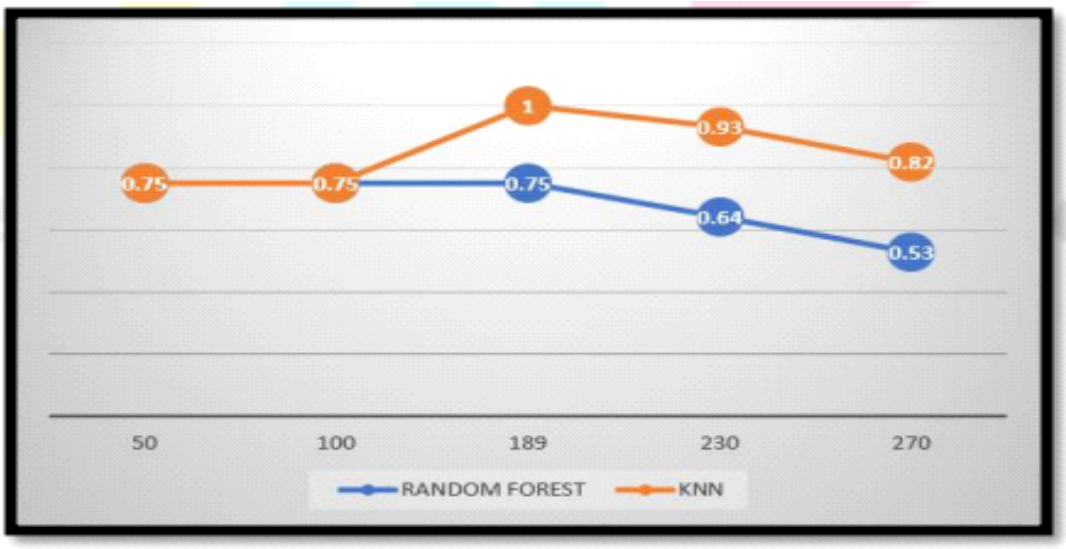
The three algorithms used in the task includes: Linear Regression, Random forest set of rules, KNN algorithm.

Following is the comparison of the F1 score of the algorithms to obtain an accurate Time Table:

DATABASE ENTRIES	RANDOM FOREST F1 SCORE	KNN F1 SCORE
50	0.75	0.75
100	0.75	0.75
189	0.75	1
230	0.64	0.93
270	0.53	0.82

Fig. Matrix comparison

Fig. Pictorial Representation of the accuracy of Random Forest Algorithm and KNN algorithm



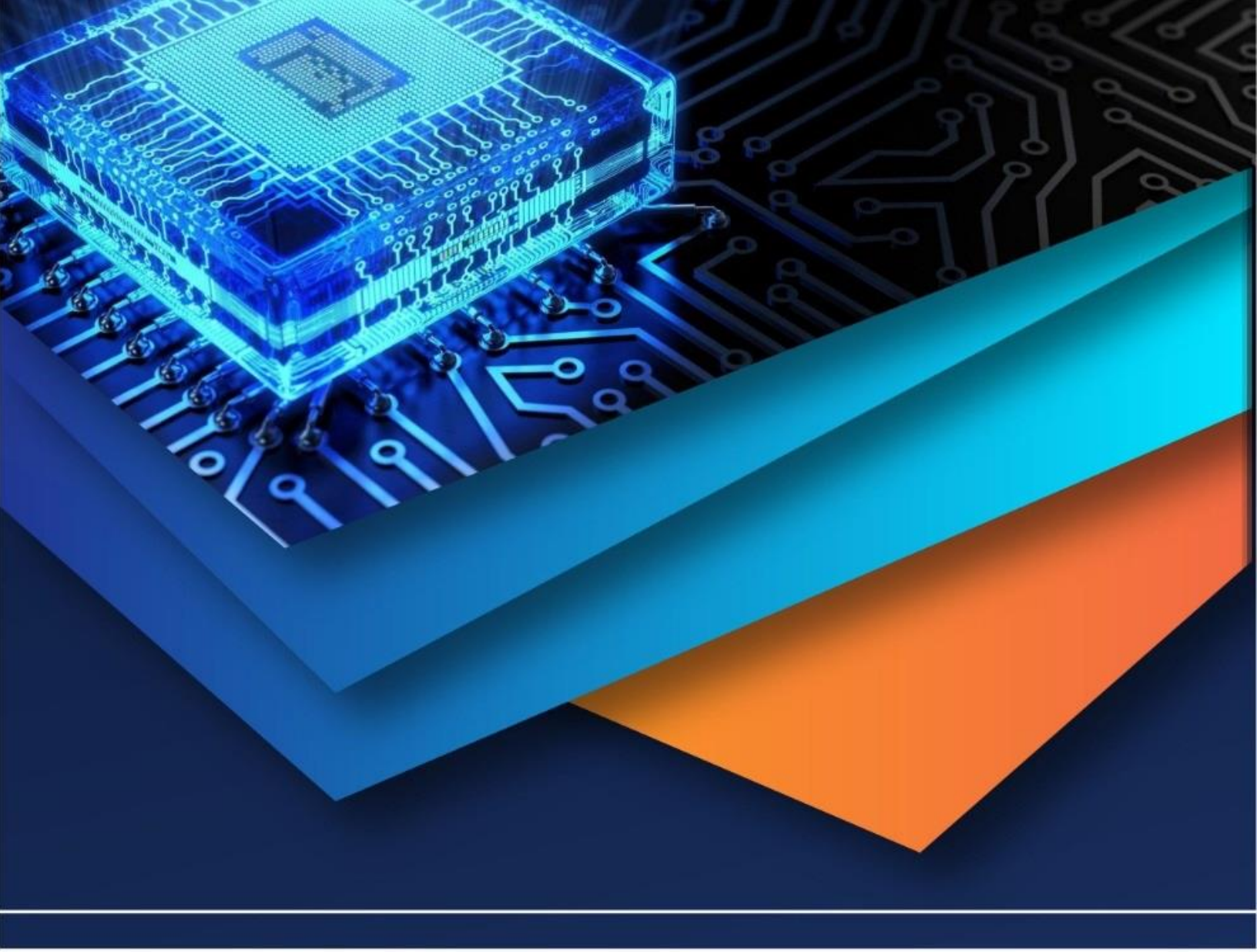
In end, the AI-prioritized challenge management system has verified to be a precious device for customers seeking green time management and prioritization.

The advantageous results from the empirical look at confirm the gadget's effectiveness and lay the basis for future improvements, ensuring its persevered relevance and utility in diverse consumer situations

REFERENCES

[1] Reference: "Integrating AI into undertaking control" by way of Smith et al. (magazine of synthetic Intelligence, 2020)
[2] "A Comparative analysis of assignment Prioritization Algorithms" by way of Johnson and Lee (conference on device mastering, 2019)
[3] "improving task Prioritization thru Collaborative Filtering" via Chen et al. (global convention on Human-laptop interaction, 2021)
[4] "Predicting task deadlines: A Time-collection Forecasting method" via Wang and Kim (journal of device mastering research, 2018)
[5] Pressure checking out an AI primarily based web carrier: A Case observe writer: IEEEAnand Chakravarty
[6] Predicting “maintenance priority” with AI writer: IEEE Ömer Yiğit Astepe; Ali Seymen Alkara
[7] Control tools for real options techniques and challenge analysis T.S. Durrani; S.M. Forbes; A.T. McKinven IEMC'01 proceedings. trade management and the new industrial Revolution. IEMC-2001 (Cat. No.01CH37286) yr: 2001 | convention Paper | publisher: IEEE
[8] A take a look at on project control machine N S Jyothi; A Parkavi 2016 worldwide conference on research Advances in included Navigation systems (RAINS) yr: 2016 | convention Paper | publisher: IEEE

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)