Program for PALS Analyze 21-22

20th SEPTEMBER 2021
2.30PM – 4.30 PM

Description of the Event : Analyze

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This event provides students with exposure to practical problems in industry. Students are encouraged to develop a deeper understanding of the problem. A lot of information is available on the internet on this subject. Discussions with faculty and industry leads would also help.

As in industry, it is not possible to have all inputs available to make a decision. Reasonable assumptions with justifications may be considered. The constraints and cost targets also need to be factored against the various options of the proposed solution.

The objective is to understand the process followed by the team to arrive at the solution considering all the above rather than only the final solution.

Event Structure

- Four Analyze events are planned in this semester.
- Partner colleges would be split into four groups of 8 colleges each
- Each event would have two case studies – one on “core” engineering and another on “systems / IT” area
- Cases would be communicated to the college EC member 7 days prior to date of the event.
- Each college will nominate two teams for the event – one team for each of the cases.
- Each team would comprise of four student members.
- Teams would have to present their analysis of the problem, conditions considered, assumptions made and justification for the same and their proposed solution. Please note - cases could have more than one solution
- The team presentations would be – max 7 slides , max time 10 minutes
- Presentations would be evaluated by a panel constituted by PALS including personnel from industry

Certificate Eligibility

- Student Participation certificate for all teams who participated
- The top team for each case would be rewarded along with winner certificate
- Decision of the Panel of PALS is final

CASE STUDY 1 – CORE :: TRACEABILITY OF BILLET IN A STEEL ROLLING MILL

It is very important in the special steel industry to trace every billet and what parts are made from them. Generally a billet weighs 1 tonne and a bundle of rolled product weighs about 2 tonnes. However, it is acceptable if a problem is traced to two billets.

The task is to devise an error-free system to trace the billet from the continuous casting machine through the rolling mill and up to sale (even billet number is to be mentioned in the invoice apart from the tag). The cost is to be limited to ₹ 15/tonne.

CASE STUDY 2 – IT :: EXTRACT TEXT FROM EMBEDDED IMAGE

Requirement Statement: The word or PDF document sometimes have embedded images in a document content.

- The data extraction requires an ability to distinguish the content is image and text
- Once the Image is detected apply further logic to extract the text from the Image.
- The system should scan the entire document and detect all the images and extract the text from it.c

Expected Output: Report the extracted text in the comma separated file with the filename, file_date, text-coordinate/lineno, text information

Store the image in a file with file naming convention filename_date_Image_running_slno.jpg

Develop a Utility to extract Text from Image - Format – Text in .CSV format and Image in .jpeg

Target Applicability: Text Analysis , OCR

Preferred Technologies:

- Python, C++ ,OpenCV, Tesseract & PDF Libraries.
- Open-Source Libraries preferred

Filename.csv
Filename,ddmmyyyy,3,Akash
Filename,ddmmyyyy,5,BRITISH AIRWAYS

Reviews : Every alternate days..

Deliverables:

Specification Document with a explanation about the following

- Solution Architecture
- System Design
- Technical components explanation with logic.
- Source code with Logic
- Operation Manual