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TEAM ID	**PNT2022TMID13406**
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PROJECT NAME	Emerging methods for early detection of forest fires.

PROJECT FLOW

Project Flow is an indicator of change planned for occurrence within a project over time. It shows the movement of project product from its conceptualization and design through delivery and deployment. Project flow describes a pre set sequence of activities required to plan, produce, deliver and maintain project product, along with information, materials, and resources required by the project.

There are key components that create project flow. These components are:

- Project activities and tasks
- Any dependencies between activities and tasks
- Budget and resources
- Schedule and activity time-frames
- Information required to maintain project activities   Project deliverables.

For this project the project flow is as follows:

- The user interacts with a web camera to read the video.
- Once the input image from the video frame is sent to the model, if the fire is detected it is showcased on the console, and alerting sound will be generated and an alert message will be sent to the Authorities. In order to achieve these goals we need to complete the following tasks:

1 DATA COLLECTION:
- Collect the dataset or create the dataset.

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated researchquestions, test hypotheses, and evaluate outcomes. The data collection component of research is common to all fields of study including physical and social sciences, humanities, business, etc. While methods vary by discipline, the emphasis on ensuring accurate and honest collection remains the same.

The importance of ensuring accurate and appropriate data collection

Regardless of the field of study or preference for defining data (quantitative, qualitative), accurate data collection is essential to maintaining the integrity of research. Both the selection of appropriate data collection instruments (existing, modified, or newly developed) and clearly delineated instructions for their correct use reduce the likelihood of errors occurring.

Consequences from improperly collected data include

- inability to answer research questions accurately
- inability to repeat and validate the study
- distorted findings resulting in wasted resources
- misleading other researchers to pursue fruitless avenues of investigation
- compromising decisions for public policy
- causing harm to human participants and animal subjects

2. <u>IMAGE PREPROCESSING</u>:

Pre-processing is a common name for operations with images at the lowest level of abstraction — both input and output are intensity images. These iconic images are of the same kind as the original data captured by the sensor, with an intensity image usually represented by a matrix of image function values (brightness). The aim of pre-processing is an improvement

of the image data that suppresses unwilling distortions or enhances some image features important for further processing,

although geometric transformations of images (e.g. rotation, scaling, translation) are classified among pre-processing methods here since similar techniques are used.

- Import Image Data Generator Library.
- Define the parameters /arguments for Image Data Generator class □ Applying Image Data Generator on trainset and test set.

- <u>MODEL BUILDING</u>:

  Project Modeling is an entirely new approach to the sales and initiation phase of a project. It allows you to develop more accurate plans in less time, accelerate the sales process, and ultimately, drive better outcomes for your customers.

- Similar to a product configurator for manufacturing, a project modeler builds the components (i.e. the tasks and costs) of a project from a predefined set of models. Project Modeling creates a streamlined planning and estimating process that enables project-based companies to scale and automate best practices from project sales through execution.

- Import the model building Libraries
- Initializing the model
- Adding CNN Layers
- Adding Hidden Layer
- Adding Output Layer
- Configure the Learning Process
- Training and testing the model
- Optimize the Model
- Save the Model

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- <u>VIDEO STREAMING AND ALERTING</u>:

- OpenCV for video processing Creating an account in Twilio service Use Twilio API to send messages.