

## Project Flow

Team ID	PNT2022TMID17719
Project Name	Project - Emerging methods for the early detection of forest fires

- 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 preset sequence of activities required to
  1. Plan
  2. Produce
  3. Deliver
  4. Maintain project product along with information, materials, and resources required by the project.
- Project flow is a convenient way to define and plan projects.
- It helps link,
  1. Project budget
  2. Schedule to project activities and tasks.

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 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 research questions, 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.

## **2. IMAGE PREPROCESSING:**

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.

## **3. MODEL BUILDING:**

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

#### **4. VIDEO STREAMING AND ALERTING:**

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