

Model Development Phase Template

Date	7 July 2024
Team ID	740019
Project Title	3D Printer material prediction using machine learning
Maximum Marks	5 Marks

Feature Selection Report Template

In the forthcoming update, each feature will be accompanied by a brief description. Users will indicate whether it's selected or not, providing reasoning for their decision. This process will streamline decision-making and enhance transparency in feature selection.

Feature	Description	Selected (Yes/No)	Reasoning
Layer height	The height of each individual layer in the print.	Yes	Layer height affects surface quality and strength of the printed object.
Wall thickness	The thickness of the outer walls of the print.	Yes	Wall thickness contributes to the durability and rigidity of the printed part.
Infill density	The density of the internal structure of the print.	Yes	Infill density influences the weight, strength and material usage of the print.
Infill pattern	The geometric pattern of the infill	Yes	Infill pattern can affect print time and mechanical properties.

Nozzle temperature	It provides a measure of central tendency, reflecting the middle value of a dataset when ordered.	Yes	Nozzle temperature is crucial for proper layer adhesion and print quality.
Bed temperature	The temperature of the print bed.	Yes	Bed temperature affects the first layer adhesion and overall print success.
Print speed	The speed at which the print head moves while printing.	Yes	Print speed can influence quality and strength of the printed part.
Fan speed	The speed of the cooling fan used during printing.	Yes	While important, it has a secondary effect compared to other more direct features like temperature like temperature and speed.
Roughness	A measure of the surface roughness of the print.	Yes	Roughness is a direct measure of the surface quality and print finish
Tension strength	The maximum stress the material	Yes	Tension strength is critical for determining the mechanical performance of the printed part

	can withstand while being stretched.		
elongation	The extent to which the material can stretch before breaking	Yes	Elongation at break is essential for assessing the flexibility and ductility of the material.