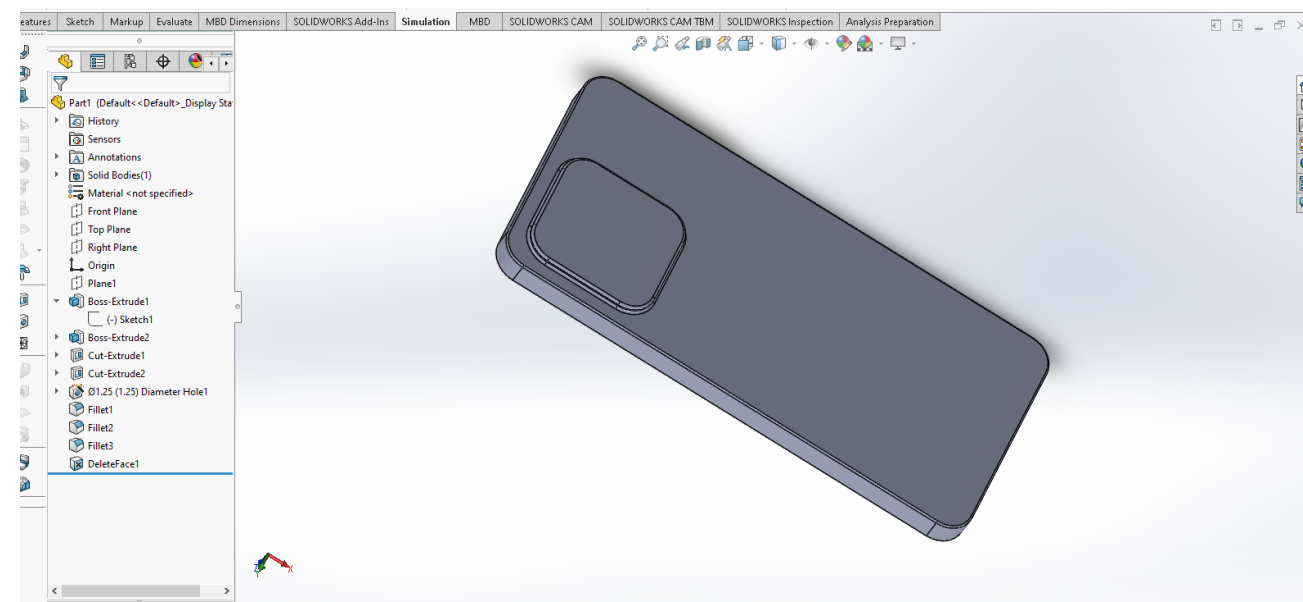
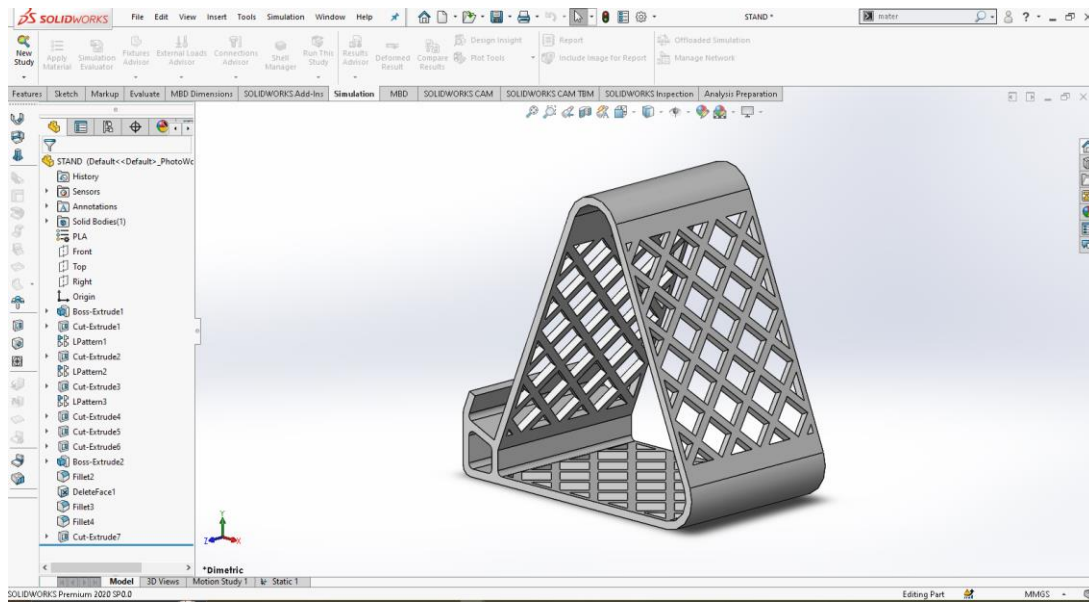


NAME:Keshav Jaitly

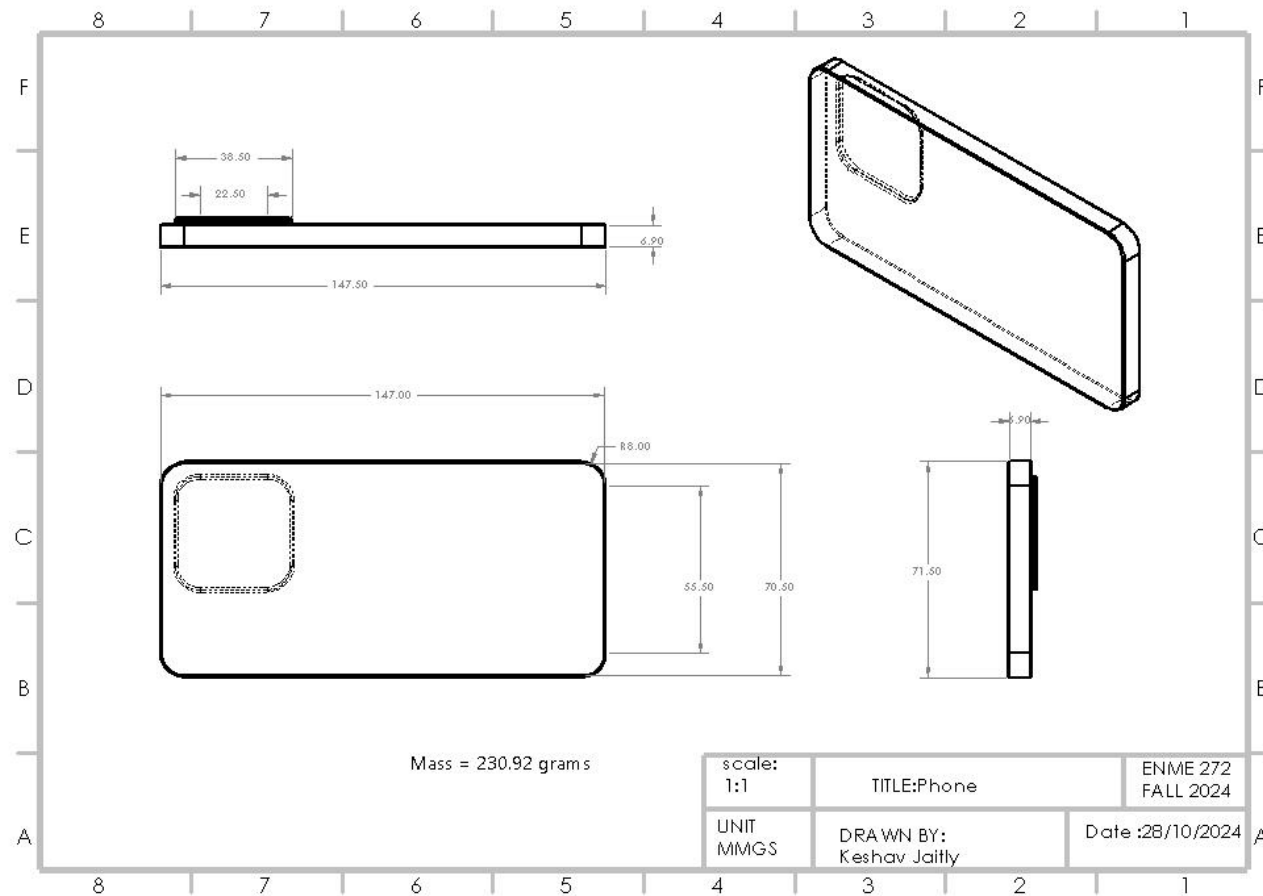
ENME 272 –FALL 2024

PROJECT NAME:CELL PHONE STAND PROJECT AND SIMULATION ANALYSIS

# SCREENSHOOT OF THE PART



# PHONE DRAWING



# STAND DRAWING

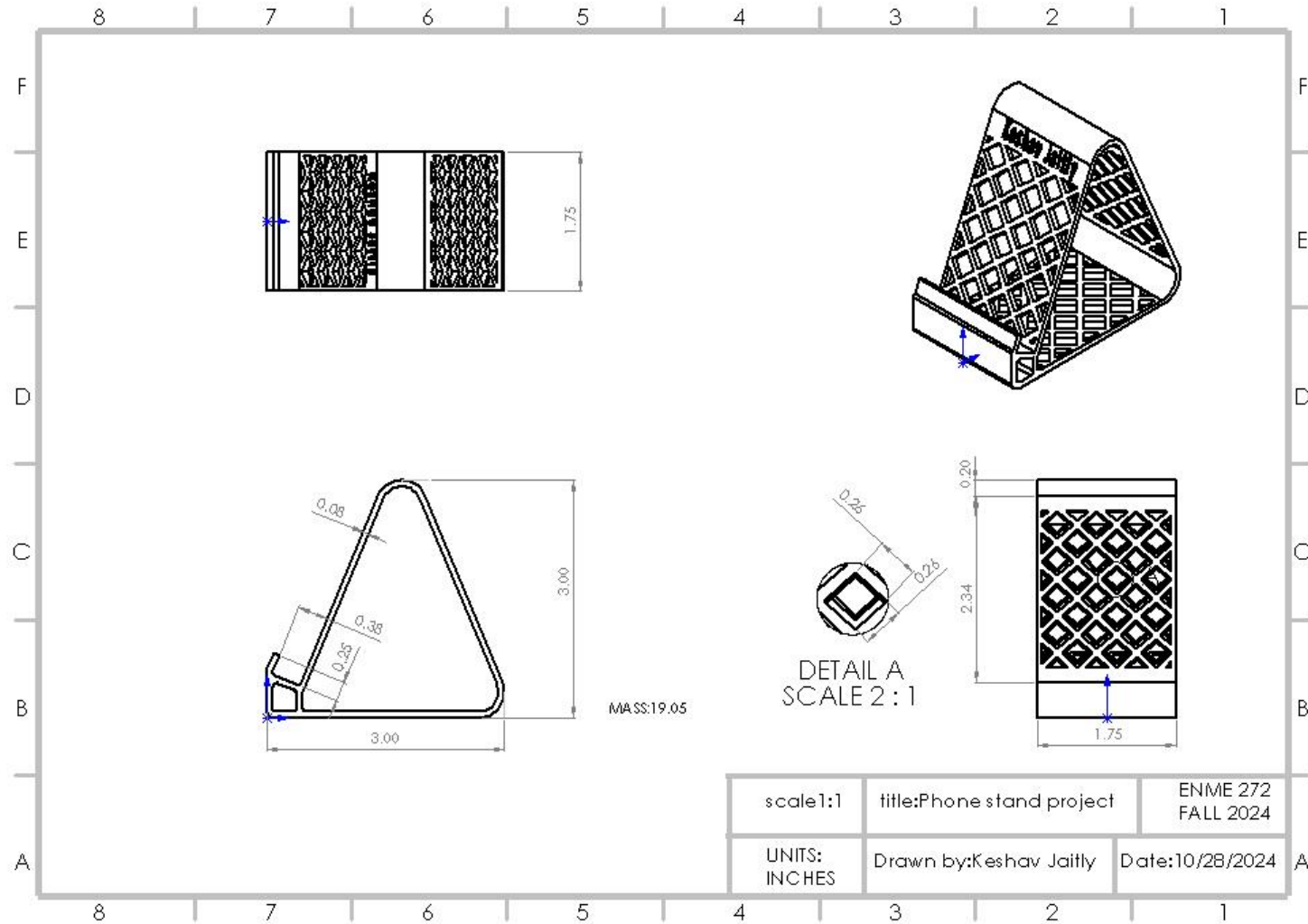


PHOTO OF THE STAND WHEN VERTICAL



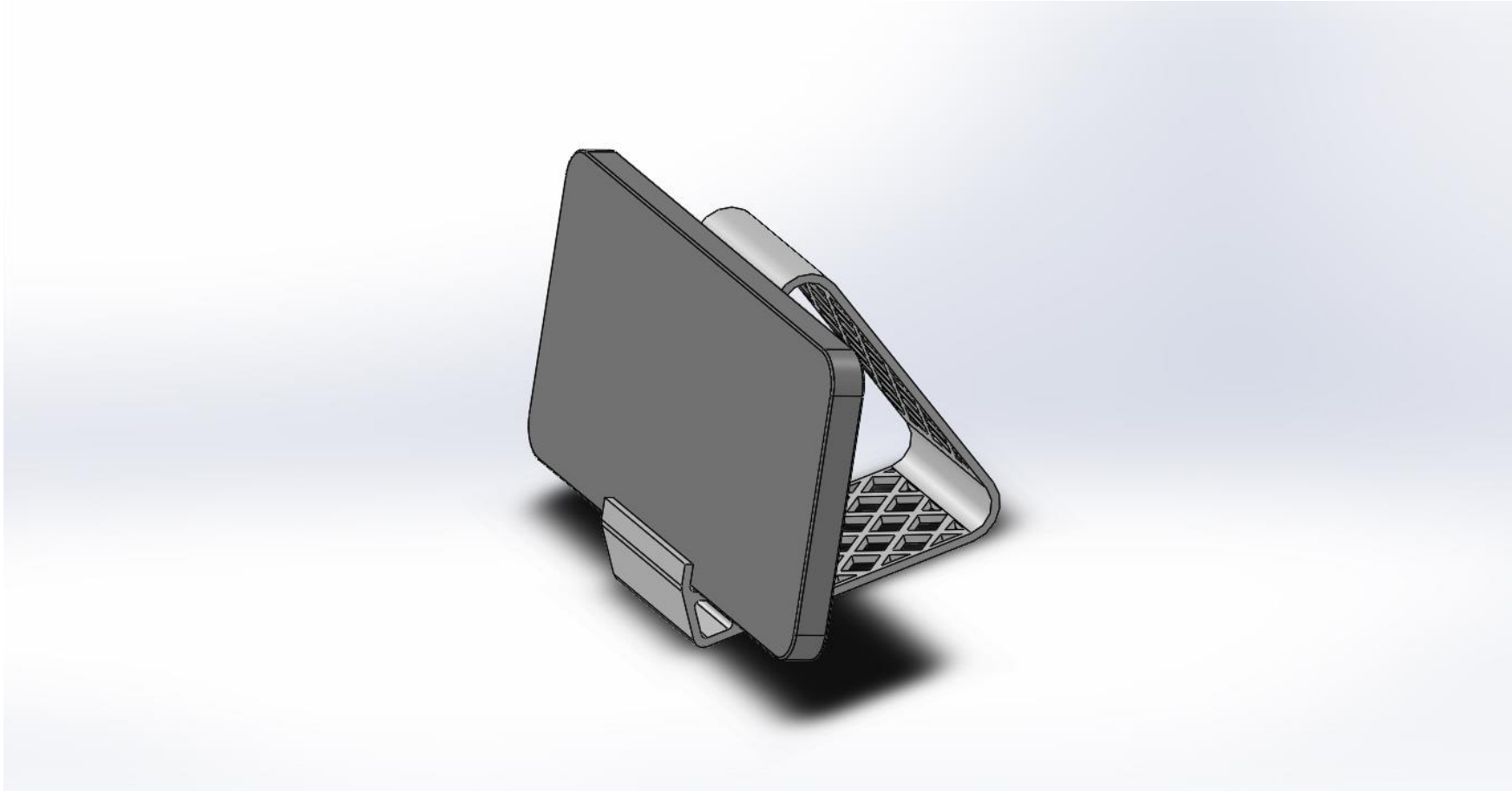
PHOTO OF THE STAND WHEN HORIZONTAL



PHOTO OF THE STAND WITH PHONE VERTICALLY

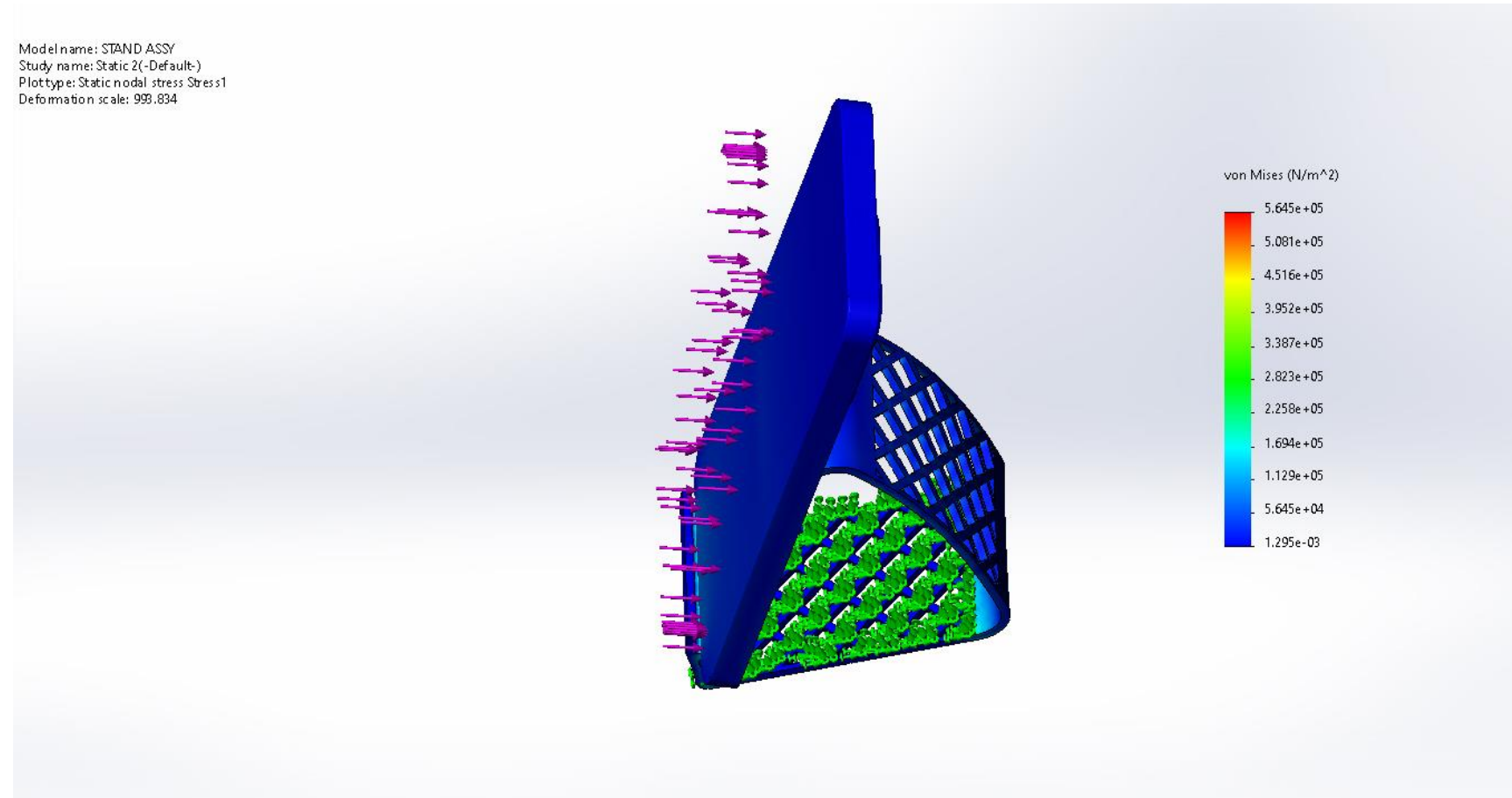


PHOTO OF THE STAND WITH PHONE HORIZONTALLY

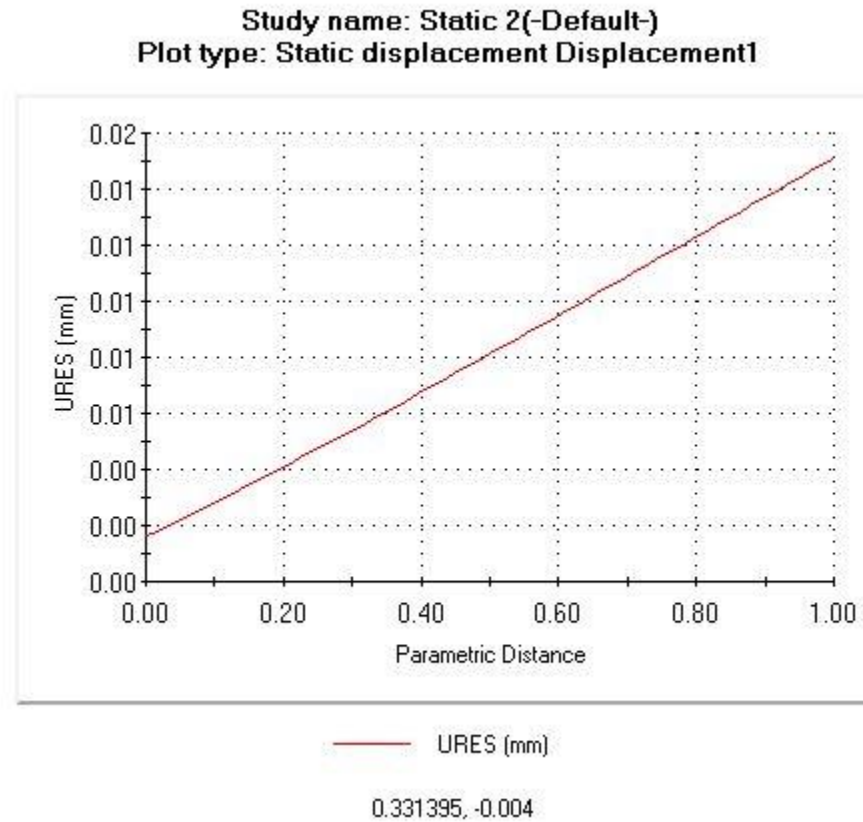




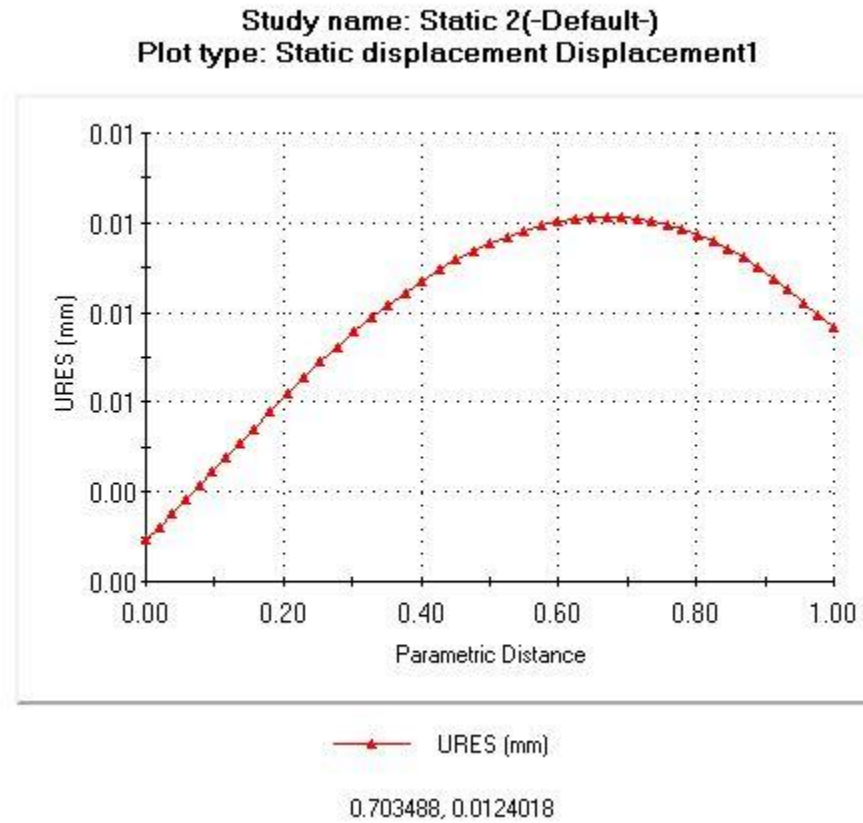
FEA results for the stand with phone vertically both Von misses stress .



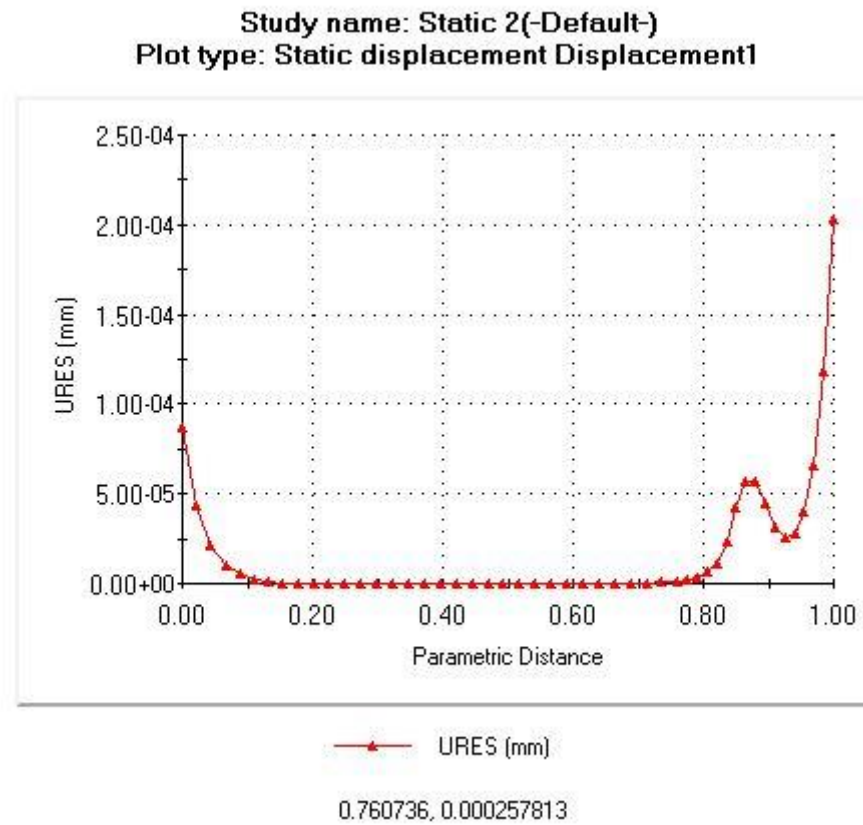
DEFLECTION GRAPH.  
The assembly didn't fail



## Graph 2 on the deflection analysis



## Graph 3



# Reflection on challenges and whether the stand behaves differently than expected.

## **CHALLENGES**

1. **Material Selection and Mass Limitation:** Ensuring the stand had adequate strength while remaining within a strict mass limit was challenging. Choosing a material that offered sufficient stiffness without adding unnecessary weight required careful balancing. Testing different materials in SolidWorks and adjusting the thickness were necessary but time-consuming steps.
2. Initial designs with 1.2mm extrusion resulted in insufficient weight, prompting an increase to 2mm. Balancing these factors to ensure stability under load while keeping the structure lightweight was a learning experience.
3. **Meshing and Simulation Issues:** The process of meshing the assembly for FEA analysis presented some technical challenges, as certain parts of the assembly were initially excluded or failed to mesh correctly. Troubleshooting this required modifying mesh settings, applying mesh controls, and experimenting with different contact definitions. Understanding how SolidWorks interprets assemblies and contacts became essential to get accurate results.

## **WHETHER THE STAND BEHAVES AS EXPECTED**

Minimal deflection as expected under phone load initial expectatios.This indicates that the design accurately support the phone without much bending or instability.