



# Team Forte

ENME 444 Mechanical Engineering Systems Design Spring 2020  
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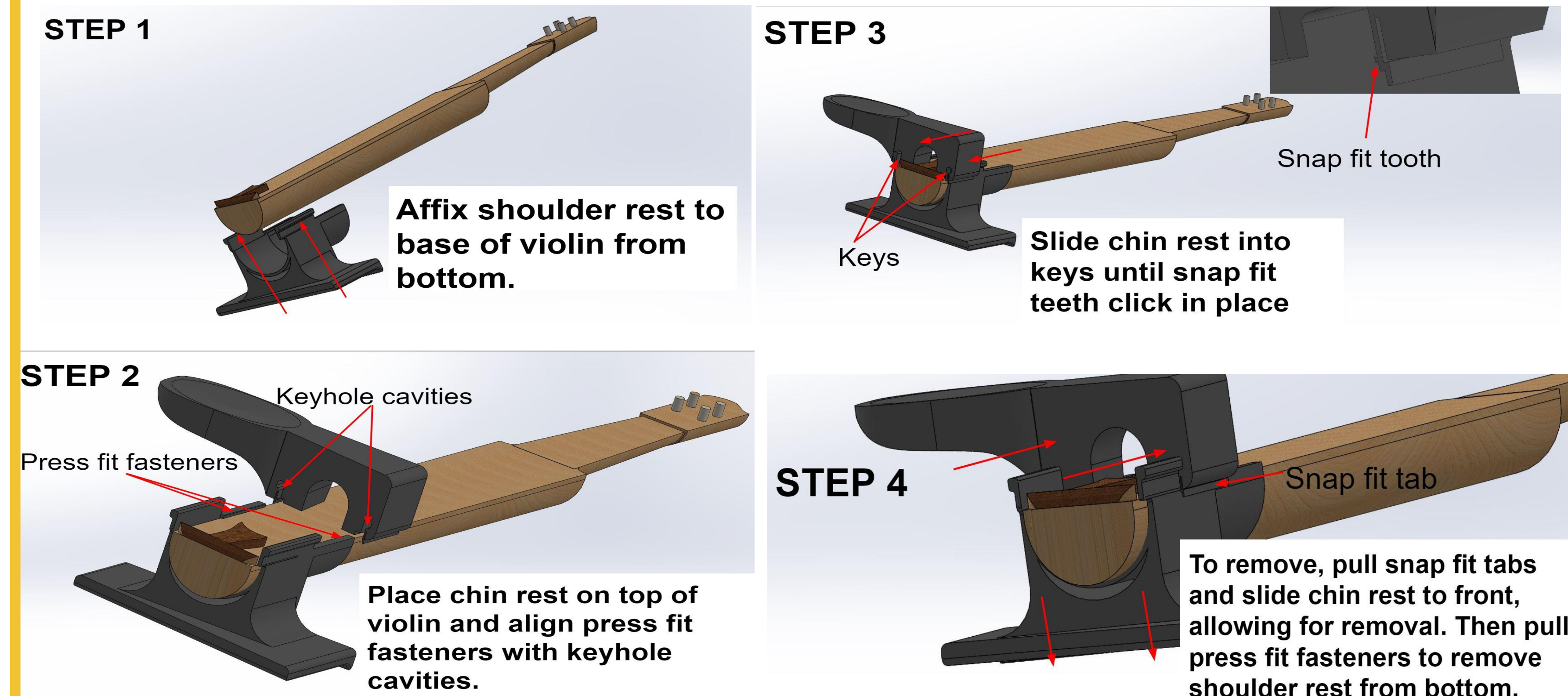


## Project Scope

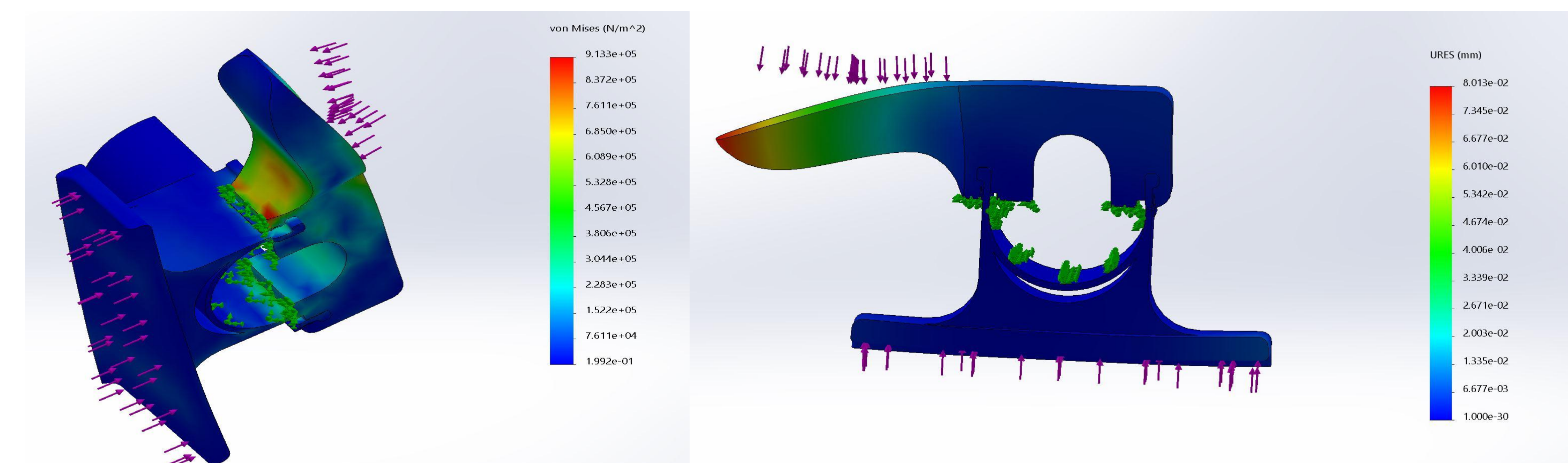
**Background:** In order for violinists to play comfortably (minimal neck strain, good posture, etc.), a support or rest is typically installed on the instrument. These rests vary in design, but commonly have points of contact at the musician's shoulder and chin. For standard violins, there are several options to choose from on the market. However, Dr. Topoleski has a custom miniature "pocket" violin, whose only support is a small inflatable donut-shaped tube that fits on the instrument's base. This device, as stated by Dr. Topoleski, is unsatisfactory; it is difficult to inflate, uncomfortable, and lacks visual appeal.

**Our Task:** To build a support system designed specifically for this violin. Additionally, he asks that a new bow be fabricated due to the small size of his current bow. Finally, these components must all have the ability to be stored in, or easily attached to the instrument's carrying case (a segment of PVC pipe).

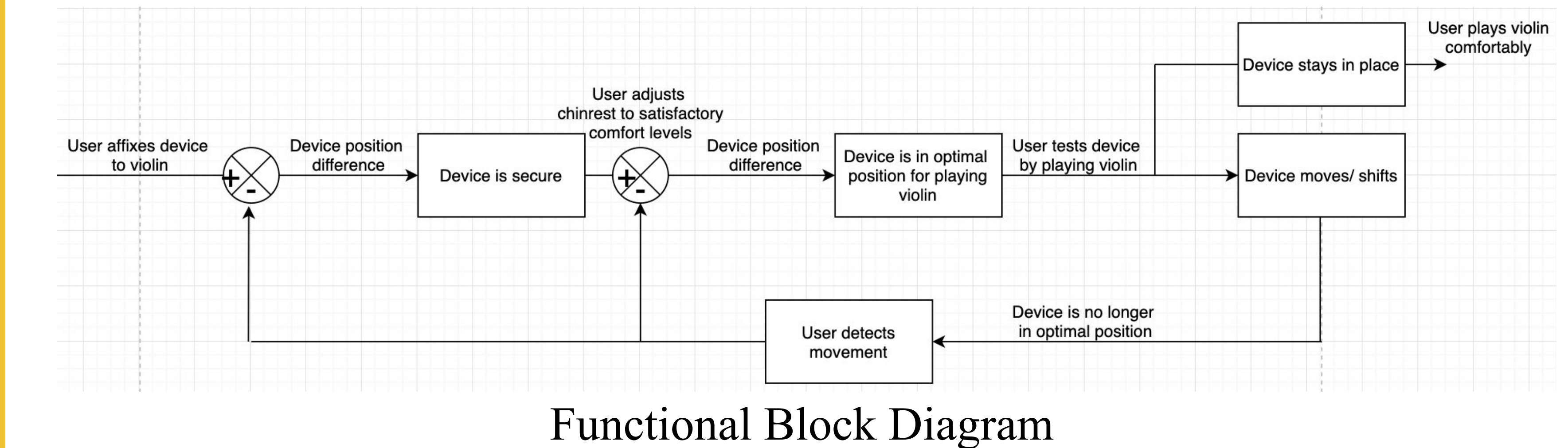
## Mission Scenario



## Analysis



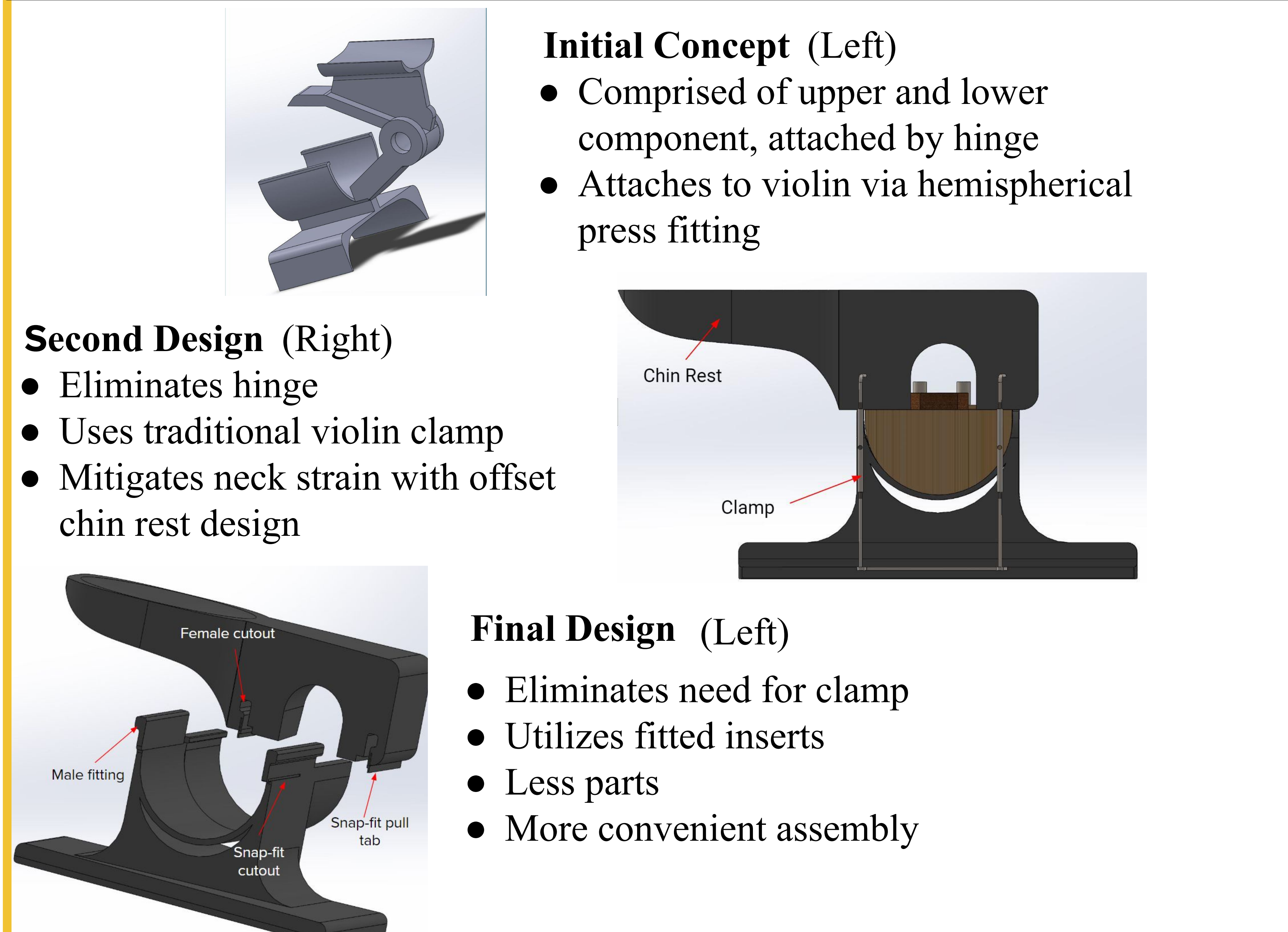
## System Requirements



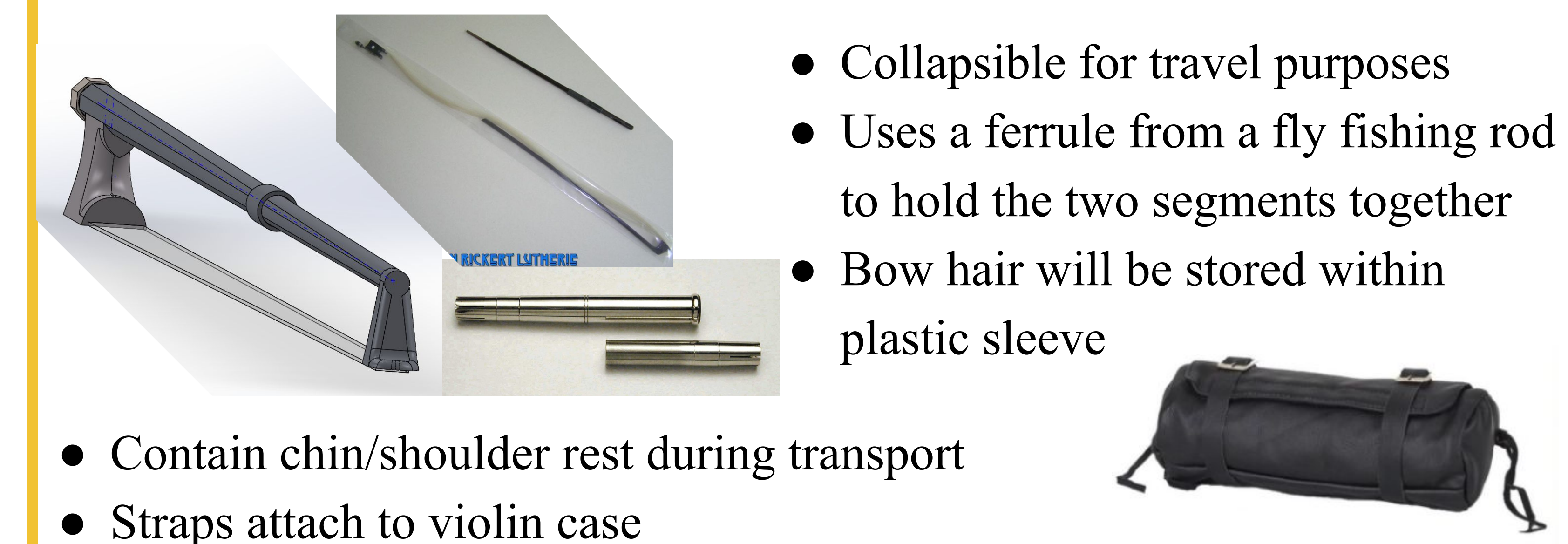
After meeting with Dr. Topoleski, the team was able to assess the key requirements for the system, which are:

- Support violin between chin and shoulder
- Attach without damage
- Shall either fit within case or have a separate carrying case that shall attach to the current case
- Chin and shoulder rest shall weigh no more than 1/4 lb
- Comfortable
- Ease of assembly

## Design Evolution



## Bow and Chin/Shoulder Rest Case



## Future Testing

- Use prototypes to develop ideal cut location for bow, and required adjustments for fitment of bow and violin into PVC case
- Have Dr. Topoleski test chin/shoulder rest for comfort and stability, and the carrying case/assembly for mobility and traveling convenience

## Acknowledgements

We would like to thank Dr. Jamie Gurganus and Dr. Tim Topoleski for their contributions.