

AI D tensegrity

Method Diagram

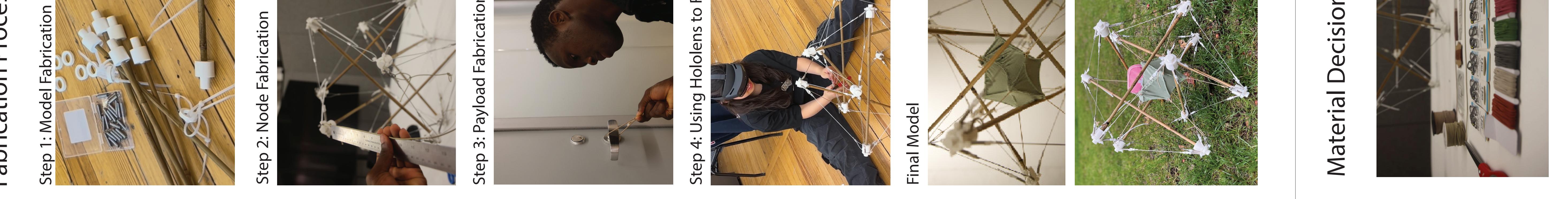
Model Design

Structure Design

| STRUCTURE DETAIL | MODEL | DESIGN PROCESS |
|---------------------|-------|--|
| Squishy Robot | | Squishy robot structure design |
| 6 Struts Web-Based | | Spider web node configuration applied to tensegrity. |
| 10 Struts Structure | | Morphed web applied as tension system. |
| 21 Struts Structure | | Optimized 30-strut tensegrity. |
| 6 Struts Triangle | | Optimized 6-strut tensegrity. |
| | | Node Design |
| | | Accessories Design |
| | | Payload Design |
| | | Material Decision |

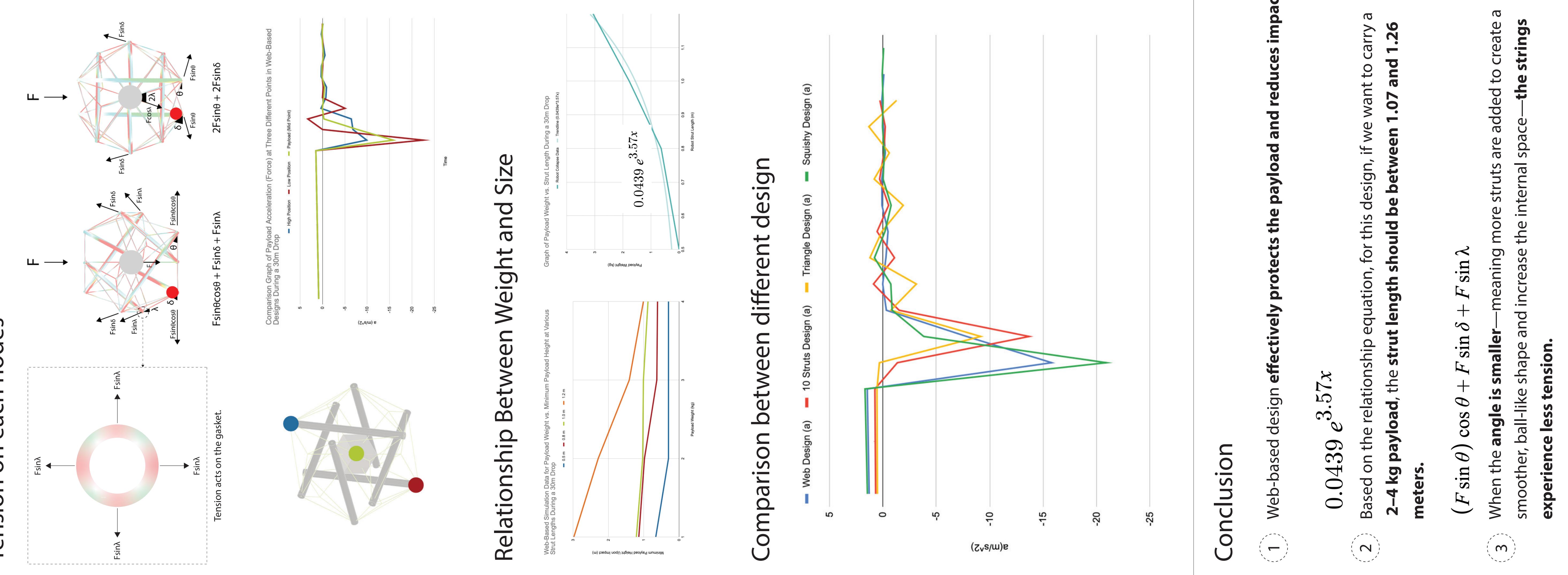
Physical Model Fabrication

Fabrication Process



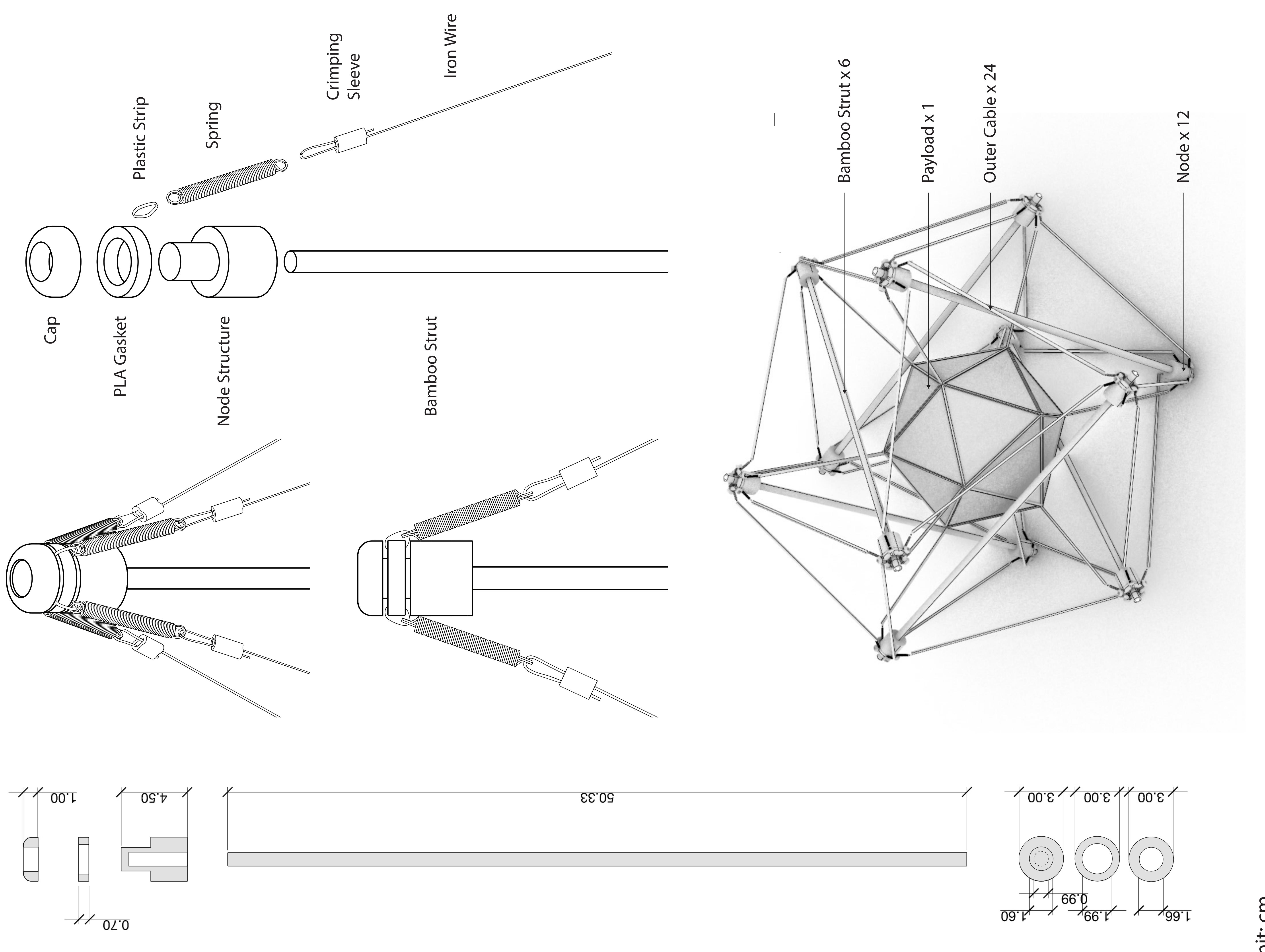
Digital Simulation

Tension on each nodes



Conclusion

- Web-based design effectively protects the payload and reduces impact.
- Based on the relationship equation, for this design, if we want to carry a 2-4 kg payload, the strut length should be between 1.0 and 1.26 meters.
- $(F \sin \theta) \cos \theta + F \sin \delta + F \sin \lambda$
When the angle is smaller—meaning more struts are added to create a smoother, ball-like shape and increase the internal space—the strings experience less tension.



Unit: cm