Title: Performance Evaluator of Craniovertebral Junction Implant

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KEYWORDS: Craniovertebral, Implant, Post-neurosurgery, Performance Evaluator
DOMAIN: Mechanical

SUMMARY:

The current instruments used in evaluating the performance of craniovertebral junction implants have a major limitation related to systems that necessitate the decapitation of the specimen (comprising the cranium and cervical spine) from the cadaver leading to significant time and energy consumption. Whereas the technology disclosed here is a system capable of evaluating the performance of the implant without decapitating the specimen from the cadaver. The examination can be carried out on the inserted implant in the cadaver. The system is configured with sensors and manipulators to study the post-neurosurgery stability of the implant. Further, the motion data is analyzed using an optical motion tracking system and X-ray imaging.
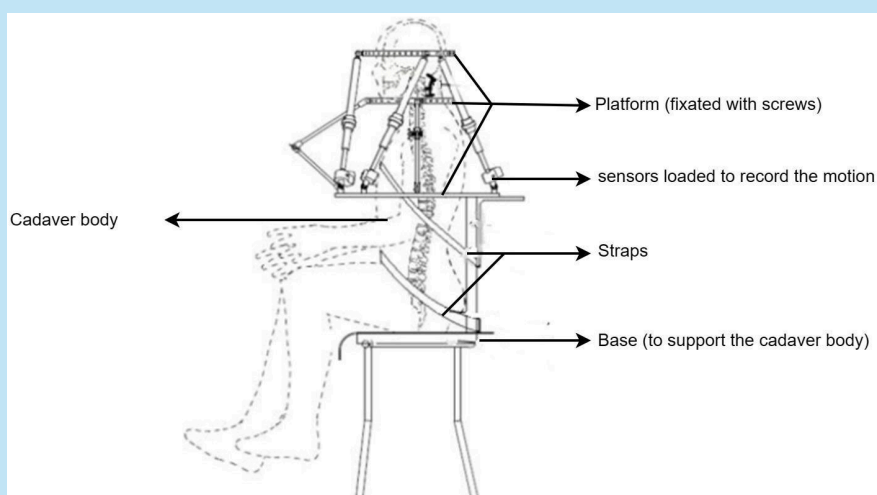
Figure: Representation of the system including the cadaver body and the performance evaluator.

ADVANTAGES:

1. Time efficient compared to the existing evaluators.
2. Ease in monitoring the performance of craniovertebral junction implant on the cadaver.
3. It can determine the post-neurosurgery stabilization of the inserted implant.
4. The manipulator is tested to move in seven degrees of freedom.

APPLICATION: Performance evaluator of craniovertebral junction implants.

SCALE OF DEVELOPMENT: A functional prototype development on a lab scale.

TECHNOLOGY READINESS LEVEL: TRL 4

IP STATUS: Indian Patent Application filed (202111005473)