**Designing and prototype a soft modular joint**

Abstract

Introduction

1. Problem definition
   1. Due to classical joint limitations many service robots platforms faces difficulties in variety of situations (list some works addressing these challenges)
2. Importance
   1. More flexible service robot platforms enable us to design and develop more robust and more divers missions for these robots. So soft mechanisms that could act and perform as joints in these robots and retain their mechanical property under real world situations have great importance
3. Idea / method
   1. The main idea is to design and develop a soft joint mechanism that use threads and springs mechanical properties in order to enable us to reach a optimum performance respect to their size and weight and surely cost

Literature review

Concept and method

* Design choice
* challenge
* Math
* Cons & pros

Validation and experimentation

* Test and validation process
* Experimenting
* Data analysis
* Control system
* Results

Discussion

* Review and study results
* Compare the platform with its predecessors
* Use cases
* Challenges / future improvments

Conclusion

* Novelty and the contribution
* Limitation
* Future work