Rheumatoid arthritis is a chronic, inflammatory joint disease. Stiffness, swelling and deformity are the most common symptoms. Approximately 20% to 30% of people become work disabled within the first two to three years of the disease.

### Clinical Assessment Techniques

A Health Assessment Questionnaire (HAQ) determines the patient ability to perform daily tasks:

- **Goniometer**
- **Kapandji score**
- **Grip strength**

- Based on manual assessment techniques
- It is a time consuming process
- To date, joint stiffness is not sufficiently quantified and it is difficult to measure empirically

### Biomechanical model, Sensor Choice & Positioning

- **Biomechanical model**: The Objective is to identify the degrees of freedom
- **Sensor Choice & Positioning**: Sensors and their positioning need to account for the identified degrees of freedom

### System Design

The finger’s side of the PCB is expected to be under flexion repeatedly under glove usage.

- Minimizing the stress under finger flexion, the meander-type structure allows the PCB to undergo large deformations without fracture.

### Conclusions

- This glove will help to quantify joint stiffness and allow for joint stiffness to be dynamically and empirically monitored
- Auto Calibration

### Future Work

- Integration in to glove
- Characterisation testing
- Test and validation will commence with clinical trials