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| **Date** | **Comment** |
| 1/5/2010 | Evaluated current status and came up with preliminary plan of action.   STATUS ASSESSMENT Definition: CFP - allow user to move through a 3D envelope of sufficient size ~ a) move freely within envelope (play around with various linkage arrangements and include tool position and user location - build them  goal: select a linkage - make sure has required envelope - make sure can sure can be actuated - make sure everything can be attached (actuators, ... - make sure facilitates user/tool entry (lateral and frontal entry) - make sure that user feel is adequate - make sure that can make necessary cuts (what are we cutting out?) - make sure gravity compensation will be OK?  CFP Current Progress - generated potential mechanism - evaluated through physical and MATLAB prototypes - eliminated mechanisms (PT1, PT2)  CFP Current Action Items: - update, refine and document remaining prototypes  - PT1 Document changes (PT1 to PT1b 'PT4 from CFP') Nic  - PT1b document physical assessment, document how hard constraint can be implemented (may still be issues with user feel) Nic  - PT2 Document Failure, Nic  - PT3a Assess physically, change model to include equivalent linkage lengths, (may still have issues with user feel, twisting?) David  - PT3b Assess physically, change model to incorporate rotational joint that acts linearly, document how hard constraint can be implemented (should be identical to linear joint) David  - recompile report RELATED FUNCTION RESEARCH - document implant shape (what we are going to cut) ERICA - document tool possibilities (what types of tools can/will be used) - document physical verification of graphs (does the model actually make sense? how does bone/knee integrate with model?) - develop criteria for drive train - develop criteria for gravity compensation - develop criteria for controller - develop criteria for tool orientation for each prototype - create list of types of potential electrical components (pro/con list) - create list of potential types of motor and drive train (pro/con list) - create preliminary software flow chart - create and evaluate and document potential layout for drive train on prototypes - prove that tool can be used anywhere in envelope with given implant shape (consider surface position with respect to approach (lateral/frontal) - where spherical bit is cutting) |
| 1/7/2010 | List of task copied out from the board.  - CFP must be completed by Thursday Jan 14 - Rough Draft CFP by Tuesday Jan 12 before Tony meeting 10AM - CFP concepts and evaluation (Mon Jan 11) - includes gravity compensation (DAVE), tool requirements and positioning (implants, tools, the approach) (NICH) requires Dave's model and Erica's implants, drive train design and assembly - how hard constraint will be implement and assessment of result (IBRAHIM and ERICA), physical description of model - why model makes sense - more detailed description of requirements found in Jan 5 scheduling outline (DAVE),  - Technical Report due Mon Jan 25 - TR outline due Tuesday Jan 19 (general content and plan to present to Tony - first attempt at simulations and analysis) - TR rough draft due friday Jan 22 - TR editing and revision completed over the weekend  Technical Report Initial Breadown - gravity compensation (how to implement, resulting virtual weight) (DAVE, NIC) - controller (software, motor controller, timing requirements, microcontoller, all other electrical components) (DAVE, DAVY, ERICA) - drive train (motor, gears, bearings, backlash, accuracy, ordering requirements and timing) (IB, ERICA) - structural (manufacturing and materials, parts requirements, deflection, accuracy, life assessment/reliability, size, weight,  ) (DAVE, ERICA) |
| 1/8/2010 | KNex Meeting  conclusion  -top heavy design (requires gravity compensation)  -spring mechanism could be implemented for GC in linear direction but rotational compensation is more complicated (2GC -> 2 dimensions)  -size concerns to get necessary range  Linear range: 12cm-16.5cm  Offset: 9cm  Link 4: 10cm  -likely to provide necessary range this size  Refer to picture. |