Done:

1. Open and load project with file .dprj (Dynamic Project)
2. revolute joint
3. revolute joint to ground
4. fixed joint
5. fixed joint to ground
6. prismatic joint
7. prismatic joint to ground
8. spring (translational)
9. damping in spring (translational)
10. spring to ground (translational)
11. spring (torsional)
12. spring (torsional) to ground
13. Add bodies.txt file to read and load only bodies that are located in this file – if you have multiple occurrences of a body with same geometry you can only have one geometry file.
14. delete VBOs before load new project (database)
15. close project – empties all data from object MBD\_system
16. load and read .dprj project file to load simulation settings (properties)
17. only one index buffer for all frame vertices buffer
18. tree model working (using model view in pyqt)
19. contact (bounding box and subdivide bounding box)
20. Save, Save As…
21. contact (find contact, variable time step size),
22. Read/write text .dat files, not .txt

Check:

1. **Update AABB data (AABB frame, nodes in AABB) as function of R, theta**
2. Display coordinate system of a body
3. variable order of numerical method)
4. revolute joint type: ideal (default), clearance, real, with friction
5. File/Close – treeview (modelview) still displays data from closed file
6. Save/load with dill or pickle

To do

1. Menu to edit (create, delete) in tree model view and automatic update in opengl widget
2. Graphical representation of springs (translational, torsional)
3. kinematic motors (drives) – df/dt = ?
4. plot results in chart during simulation?
5. calculate mass moment of inertia (volume) from cloud of triangles – stl file
6. visualize parameterized (with lines) geometry models
7. dynamics 2D to 3D