This is the Morphex Ground Exploration Robot MKI (MGER MKI for short)

I found [Kåre Halvorsen](http://www.robotpark.com/academy/robotdesigners/kare-halvorsen/)’s MorpHex project inspiring and very interesting. This robot is modelled after one of the MorpHex robot phases from [Kåre Halvorsen](http://www.robotpark.com/academy/robotdesigners/kare-halvorsen/) that can be found on the following webpage:

<http://www.robotpark.com/academy/designproject/morphex-project-morphing-hexapod-kare-halvorsen-81020/>

I found this robot to be an interesting approach to a hexapod design. One of the most intriguing aspects it possesses is the capability to transform from a six legged hexapod into a sphere. This provides a different means of transportation for the robot when maneuvering different landscapes. This versatility was an interesting challenge to design around and work with.

The purpose for my model was to undergo a full scale robotic design project. Based off images from the site above, I used a top down design approach to develop custom frames, arms, shield, and other parts for the robot. I modelled off the shelf lynx motion parts for the robots legs and used the SSC-32 servo-controller CAD model from the following website for electronic compatibility purposes:

<http://www.lynxmotion.com/s-5-ses-3d-models.aspx>

These parts can be 3D printed or manufactured for prototyping if anyone is looking for a starting point to develop this robot in real life. It is important to note that the Flange ball bearings are not OEM grade and for prototyping one would need to source out appropriate bearings for use.

Future versions of the MGER will include denser shield designs, scalability, gyroscope orientation detection, additional sensor hardware, and an exploration end effector arm.

My next step with this project is to try and use simulation software, maybe Gazebo in ROS, to develop controls for the movement of the robot (transformative operations and sensor integration).

Thanks and I hope you all enjoy my model!

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