Claims:

1. A magnetic encoder for a miniature four-wheel driver control comprising:

a conventional disk shaped permanent axial magnet having a first end, a second end and a continuous sidewall between said first end and second end, said disk shaped permanent axial magnet is bisected between said first end and said second end such that said continuous sidewall consists of a north pole and a south pole;

a magnet holder having a cavity to receive said disk shaped permanent magnet, said cavity; and

a sensing element position apart from said magnet holder and facing an exposed portion of said north and south poles of said disk shaped permanent axial magnet, wherein said disk shaped permanent axial magnet has a longitudinal axis running through said first end and said second end, said magnet holder and said sensing element share a longitudinal axis that is perpendicular to said longitudinal axis of said disk shaped permanent axial magnet.

2. ~~The~~A magnetic encoder ~~according to claim 1~~ for a miniature four-wheel driver control comprising:

a conventional disk shaped permanent axial magnet having a first end, a second end and a continuous sidewall between said first end and second end, said disk shaped permanent axial magnet is bisected between said first end and said second end such that said continuous sidewall consists of a north pole and a south pole;

a magnet holder having a cavity to receive said disk shaped permanent magnet, said cavity; and

a sensing element position apart from said magnet holder and facing an exposed portion of said north and south poles of said disk shaped permanent axial magnet, wherein

said magnet holder and said sensing element share a longitudinal axis, and said permanent axial magnet has a longitudinal axis running through said north pole and said south pole that is arranged at an angle between 70 to 110 degrees to said longitudinal axis of said magnet holder and said sensing element.

3. The magnetic encoder according to any of claims 1 and 2 wherein a portion of said cavity is adapted to mate with a portion of said permanent axial magnet.

4. A moving object comprising a base and a magnetic encoder according to any of claims 1-3, wherein said magnetic encoder is arranged on said base to monitor the movement of the moving object.

5. A miniature two axes four-wheel drive control for an object comprising:

a base;

a first driver having:

a first wheel assembly;

a second wheel assembly;

a motor assembly for driving said second wheel assembly,

a magnetic encoder according to claim 1 or claim 2 arranged between said first and second wheel assemblies; and

a frame for holding said first wheel assembly, said second wheel assembly, said motor assembly, and said encoder assembly;

a second driver identical to said first driver; and

a controller for controlling a movement of said object, wherein in use, said motor assembly drives said second wheel assembly which causes said encoder assembly to cause said first wheel assembly to move.