Claims:

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

a base having a first side, a second side, a front side and a rear side;

a first driver arranged on said first side of said base having a first wheel assembly, a second wheel assembly, a motor assembly for driving said second wheel assembly;

a second driver arranged on said second side of said base, said second driver identical to said first driver;

a first magnetic encoder assembly and a second magnetic encoder assembly arranged between said first and second wheel assemblies of each of said first and second drivers, each of said first and second magnetic encoder assemblies having a pinion connecting a gear of said second wheel assembly to a gear of said first wheel assembly;

a first frame for holding said first driver and said first magnetic encoder assembly;

a second frame for holding said second driver and said second magnetic encoder assembly; and

a controller for controlling a movement of said object, wherein in use, said motor assembly of each of said first and second drivers drives respective gear of said second wheel assembly to movewhich causinge said pinion of respective first and second magnetic encoder assemblies to cause respective gear of said first wheel assembly to move.

2. The miniature two axes four-wheel drive control according to claim 1 wherein said frame comprises a pair of eyelets for securing said frame to said base.

3. The miniature two axes four-wheel drive control according to any one of claims 1-2 wherein said first driver and said second driver are diagonally arranged apart from each other.

4. The miniature two axes four-wheel drive control according to any one of claims 1-3 wherein each of said first and second magnetic encoders assemblies comprises:

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.

5. The miniature two axes four-wheel drive control according to claim 4 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.

6. The miniature two axes four-wheel drive control according to any one of claims 4-5 wherein a portion of said cavity is adapted to mate with a portion of said permanent axial magnet.

7. The miniature two axes four-wheel drive control according to any one of claims 4-6 wherein each of said first and second magnetic encoders assemblies further comprises:

a bearing having a bearing mechanism, a flange and a through opening; ~~and~~

~~a pinion having a through opening~~.

8. The miniature two axes four-wheel drive control according to claim 7 wherein said magnet holder comprises an extension having a first portion for receiving said through opening of said bearing and a second portion for receiving a~~said~~ through opening of said pinion.

9. The miniature two axes four-wheel drive control according to claim 8 wherein said second portion of said extension of said magnet holder is diametrically smaller than said first portion of said extension of said magnet holder.

10. The miniature two axes four-wheel drive control according to claim 9 wherein each of said first and second magnetic encoder~~s~~ assemblies further comprises a first locking mechanism to securing said bearing, said pinion, said magnet holder to respective said first and second frames.

11. The miniature two axes four-wheel drive control according to claim 10 wherein said first wheel assembly of each of said first and second drivers comprises:

a bearing having a bearing mechanism, a flange and a through opening;

said gear having teeth around a perimeter of said gear and an extension;

a rim having an insert adapted to receive said extension of said gear, a flange and a through opening adapted to receive said bearing; and

a second locking mechanism for securing said bearing, said gear, and said rim to respective said first and second frames.

12. The miniature two axes four-wheel drive control according to claim 11 wherein said motor assembly of each of said first and second drivers comprises:

a motor having a shaft; and

a pinion connected to said shaft.

13. The miniature two axes four-wheel drive control according to claim 12 wherein said second wheel assembly of each of said first and second drivers comprises:

a bearing having a bearing mechanism, a flange and a through opening;

said gear having inner teeth engagably connectable to said teeth of said pinion of said motor assembly and outer teeth engagably connectable to said teeth of said pinion of respective said first and second magnetic encoders;

a rim having an insert adapted to receive said extension of said gear, a flange and a through opening adapted to receive said bearing; and

a third locking mechanism for securing said bearing, said gear, and said rim to respective said first and second frames.