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What is claimed is:

1. An apparatus comprising:

a first substrate comprising a first coil for generating a magnetic field, wherein the coil is substantially planar and lies in a first plane, and wherein the first coil and the first substrate are monolithically integrated; and

a second substrate comprising an electrical switch that comprises a first electrical contact and a second electrical contact, wherein the first electrical contact is moved by the magnetic field, and wherein the electrical switch and the second substrate are monolithically integrated, and further wherein the first electrical contact moves selectively in a second plane that is substantially parallel to the first plane.

2. The apparatus of claim 1 wherein the first substrate further comprises a second coil for augmenting the magnetic field, wherein the second coil is substantially planar and lies in the first plane, and wherein the second coil and the first substrate are monolithically integrated.

3. The apparatus of claim 1 wherein the first substrate further comprises a second coil for augmenting the magnetic field, wherein the second coil is substantially planar and lies in a third plane that is substantially parallel to the first plane, and wherein the first coil and second coil are substantially concentric, and further wherein the second coil and the first substrate are monolithically integrated.

4. The apparatus of claim 1 wherein the first substrate further comprises:

a third electrical contact; and

a fourth electrical contact;

wherein the first substrate has a first surface and a second surface, and wherein the first coil is proximal to the first surface and distal to the second surface, and further wherein the third electrical contact and fourth electrical contact are proximal to the second surface and distal to the first surface; and

wherein the first coil generates the magnetic field based on a first current that flows between the third electrical contact and the fourth electrical contact.

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5. The apparatus of claim 4 wherein the first substrate further comprises:

a fifth electrical contact, wherein the first electrical contact and fifth electrical contact are electrically coupled; and

a sixth electrical contact, wherein the second electrical contact and the sixth electrical contact are electrically coupled;

wherein the fifth electrical contact and sixth electrical contact are proximal to the second surface and distal to the first surface; and

wherein the magnetic field moves the first electrical contact into physical contact with the second electrical contact and enables the flow of a second current between the fifth electrical contact and the sixth electrical contact.

6. The apparatus of claim 5 further comprising a closed magnetic circuit for channeling the magnetic field through the electrical switch, wherein the closed magnetic circuit comprises:

a first magnetic core, wherein the first magnetic core comprises the first electrical contact; and

a second magnetic core, and wherein the second magnetic core comprises the second electrical contact.

7. The apparatus of claim 1 further comprising:

a first magnetic core for channeling the magnetic field, the first magnetic core comprising a first electrical terminal and the first electrical contact, wherein the first coil surrounds the first magnetic core in the first plane;

a second coil that is substantially planar and lying in a second plane, wherein the first coil and the second coil are dimensioned and arranged to collectively generate the magnetic field; and

a second magnetic core for channeling the magnetic field, the second magnetic core comprising a second electrical terminal and the second electrical contact, wherein the second coil surrounds the second magnetic core in the second plane;

wherein the electrical switch controls the flow of a first current between the first electrical terminal and the second electrical terminal.

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8. The apparatus of claim 7 wherein the first plane and the second plane are substantially the same plane.

9. The apparatus of claim 1 further comprising a closed magnetic circuit for channeling the magnetic field through the electrical switch, wherein the closed magnetic circuit comprises:

a first magnetic core comprising;

a first via that is through the first substrate, wherein the first via and the first coil are concentric;

a second via that is through the second substrate; and

a first anchor comprising a first member that moves selectively in the second plane, the first member comprising the first electrical contact;

wherein the second substrate, the first anchor, and the first member are monolithically integrated, and wherein each of the first via, the second via, and the first anchor comprises ferromagnetic material; and

a second magnetic core comprising;

a third via that is through the first substrate;

a fourth via that is through the second substrate; and

a second anchor comprising the second electrical contact, wherein the second substrate and the second anchor are monolithically integrated;

wherein each of the third via, the fourth via, and second anchor comprises ferromagnetic material.

10. The apparatus of claim 9 further comprising a second coil, wherein the second coil is dimensioned and arranged to operate with the first coil to collectively generate the magnetic field, and wherein the first substrate comprises the second coil, and further wherein the third via and the second coil are concentric.

11. A method comprising:

providing a first substrate comprising a first coil for generating a magnetic field, wherein the first coil is substantially planar and lies in a first plane;

providing a second substrate comprising an electrical switch that is a magnetically actuated switch, wherein the electrical switch comprises a first electrical contact and a second electrical contact, and wherein the first electrical contact is movable selectively in a second plane; and

arranging the first substrate and second substrate in a first arrangement wherein the second plane is substantially parallel to the first plane; and

enabling the coupling of the magnetic field and the electrical switch.

12. The method of claim 11 further wherein the coupling of the magnetic field and electrical switch is enabled by operations comprising:

providing a first magnetic core, wherein the first coil surrounds the first magnetic core in the first plane; and

providing a second magnetic core, wherein the first magnetic core and second magnetic core collectively define a closed magnetic circuit;

wherein the first magnetic core and second magnetic core are dimensioned and arranged to collectively channel the magnetic field through the electrical switch.

13. The method of claim 12:

wherein the first magnetic core is provided by operations comprising:

forming a first via through the first substrate;

forming a second via through the second substrate; and

forming a first anchor on the second substrate, wherein the first anchor comprises a first member that is movable in the second plane, and wherein the first member comprises the first electrical contact;

wherein each of the first via, second via, and first anchor comprises ferromagnetic material; and

wherein the second magnetic core is provided by operations comprising:

forming a third via that is through the first substrate;

forming a fourth via that is through the second substrate; and

forming a second anchor on the second substrate, wherein the second anchor comprises the second electrical contact;

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wherein each of the third via, fourth via, and second anchor comprises ferromagnetic material;

wherein the first arrangement enables magnetic coupling between the first and second via and between the third and fourth via.

14. The method of claim 13 further comprising:

providing a third electrical contact;

providing a fourth electrical contact, wherein the third electrical contact, first coil, and fourth electrical contact are electrically coupled;

providing a fifth electrical contact that is electrically coupled with the first electrical contact; and

providing a sixth electrical contact that is electrically coupled with the second electrical contact;

wherein the first substrate comprises the third electrical contact, fourth electrical contact, fifth electrical contact, and sixth electrical contact, and wherein the first substrate comprises a first surface and a second surface, and wherein the first coil is proximal to the first surface and distal to the second surface, and further wherein each of the third electrical contact, fourth electrical contact, fifth electrical contact, and sixth electrical contact is proximal to the second surface and distal to the first surface.

15. The method of claim 11 further comprising providing a second coil for augmenting the magnetic field, wherein the first substrate comprises the second coil, and wherein the second coil is substantially planar and lies in the first plane.

16. The method of claim 11 further comprising providing a second coil for augmenting the magnetic field, wherein the first substrate comprises the second coil, and wherein the second coil is substantially planar and lies in a third plane that is substantially parallel to the first plane, and further wherein the first coil and second coil are substantially concentric.

What is claimed is:

1. An apparatus comprising:

a first substrate having a first surface and a second surface, the first substrate comprising a first coil for generating a magnetic field, wherein the first coil is substantially planar and lies in a first plane, and wherein the first coil and the first substrate are monolithically integrated; and

a second substrate comprising an electrical switch that comprises a first electrical contact and a second electrical contact, wherein the first electrical contact is moved by the magnetic field, and wherein the electrical switch and the second substrate are monolithically integrated, and further wherein the first electrical contact moves selectively in a second plane that is substantially parallel to the first plane;

wherein the first substrate further comprises a third electrical contact and a fourth electrical contact, and wherein the first coil is proximal to the first surface and distal to the second surface, and further wherein the third electrical contact and fourth electrical contact are proximal to the second surface and distal to the first surface; and

wherein the first coil generates the magnetic field based on a first current that flows between the third electrical contact and the fourth electrical contact.

2. The apparatus of claim 1 wherein the first substrate further comprises a second coil for augmenting the magnetic field, wherein the second coil is substantially planar and lies in the first plane, and wherein the second coil and the first substrate are monolithically integrated.

3. The apparatus of claim 1 wherein the first substrate further comprises a second coil for augmenting the magnetic field, wherein the second coil is substantially planar and lies in a third plane that is substantially parallel to the first plane, and wherein the first coil and second coil are substantially concentric, and further wherein the second coil and the first substrate are monolithically integrated.

4. The apparatus of claim 1 wherein the first substrate further comprises:

a fifth electrical contact, wherein the first electrical contact and fifth electrical contact are electrically coupled; and

a sixth electrical contact, wherein the second electrical contact and the sixth electrical contact are electrically coupled;

wherein the fifth electrical contact and sixth electrical contact are proximal to the second surface and distal to the first surface; and

wherein the magnetic field moves the first electrical contact into physical contact with the second electrical contact and enables the flow of a second current between the fifth electrical contact and the sixth electrical contact.

5. The apparatus of claim 4 further comprising a closed magnetic circuit for channeling the magnetic field through the electrical switch, wherein the closed magnetic circuit comprises:

a first magnetic core, wherein the first magnetic core comprises the first electrical contact; and

a second magnetic core, and wherein the second magnetic core comprises the second electrical contact.

6. An apparatus comprising:

a first coil for generating a magnetic field, wherein the first coil is substantially planar and lies in a first plane;

a first magnetic core for channeling the magnetic field, wherein the first magnetic core comprises a first electrical terminal and a first electrical contact that is movable, and wherein the first coil surrounds the first magnetic core in the first plane;

a second coil for augmenting the magnetic field, wherein the second coil is substantially planar and lies in a second plane; and

a second magnetic core for channeling the magnetic field, wherein the second magnetic core comprises a second electrical terminal and a second electrical contact, and wherein the second coil surrounds the second magnetic core in the second plane;

wherein the first electrical contact and the second electrical contact collectively define a magnetically actuated switch for controlling the flow of a first current between the first electrical terminal and the second electrical terminal.

7. The apparatus of claim 6 wherein the first plane and the second plane are substantially the same plane.

8. The apparatus of claim 6 wherein the first coil and the second coil are electrically connected in series.

9. The apparatus of claim 6 wherein the first electrical contact is movable in a third plane that is substantially parallel to the first plane.

10. The apparatus of claim 6 further comprising a first substrate and a second substrate, wherein the first substrate, the first coil, and the second coil are monolithically integrated,

and wherein the second substrate, the first electrical contact, and the second electrical contact are monolithically integrated.

11. An apparatus comprising:

(1) a first substrate that defines a first plane, wherein the first substrate comprises a plurality of coils for collectively generating a magnetic field, and wherein each of the coils is substantially planar and parallel to the first plane, and further wherein the first substrate and the plurality of coils are monolithically integrated;

(2) a second substrate comprising an electrical switch that comprises a first electrical contact and a second electrical contact, wherein the first electrical contact is dimensioned and arranged to move selectively in a second plane that is substantially parallel to the first plane, and further wherein the second substrate, the first electrical contact, and second electrical contact are monolithically integrated; and

(3) a closed magnetic circuit for channeling the magnetic field through the electrical switch, wherein the closed magnetic circuit comprises;

(i) a first magnetic core comprising;

(a) a first via that is through the first substrate, wherein the first via and a first coil of the plurality of coils are concentric;

(b) a second via that is through the second substrate; and

(c) a first anchor comprising a first member that is movable in the second plane, wherein the first member comprises the first electrical contact, and wherein the second substrate, the first anchor, and the first member are monolithically integrated; wherein each of the first via, second via, and first anchor comprises ferromagnetic material; and

(ii) a second magnetic core comprising;

(a) a third via that is through the first substrate, wherein the third via and a second coil of the plurality of coils are concentric;

(b) a fourth via that is through the second substrate; and

(c) a second anchor comprising the second electrical contact, wherein the second substrate and the second anchor are monolithically integrated;

wherein each of the third via, fourth via, and second anchor comprises ferromagnetic material;

wherein the magnetic field moves the first electrical contact in the second plane to actuate the electrical switch.

12. The apparatus of claim 11 wherein the first substrate further comprises:

(3) a third electrical contact;

(4) a fourth electrical contact, wherein the third electrical contact, each of the plurality of coils, and the fourth electrical contact are electrically coupled;

(5) a fifth electrical contact, wherein the fifth electrical contact and the first electrical contact are electrically coupled; and

(6) a sixth electrical contact, wherein the sixth electrical contact and the second electrical contact are electrically coupled;

wherein the first substrate comprises a first surface and a second surface, and wherein each of the plurality of coils is proximal to the first surface and distal to the second surface;

wherein the third electrical contact, fourth electrical contact, fifth electrical contact, and sixth electrical contact are proximal to the second surface and distal to the first surface; and

wherein the magnetic field electrically couples the first electrical contact and second electrical contact and enables the flow of a current between the fifth electrical contact and the sixth electrical contact.

13. A method comprising:

(1) providing a first substrate comprising a first coil for generating a magnetic field, wherein the first coil is substantially planar and lies in a first plane;

(2) providing a second substrate comprising an electrical switch that is a magnetically actuated switch, wherein the electrical switch comprises a first electrical contact and a second electrical contact, and wherein the first electrical contact is movable selectively in a second plane;

(3) arranging the first substrate and second substrate in a first arrangement wherein the second plane is substantially parallel to the first plane; and

(4) enabling the coupling of the magnetic field and electrical switch by operations comprising;

(i) providing a first magnetic core, wherein the first coil surrounds the first magnetic core in the first plane, and wherein the first magnetic core is provided by operations comprising;

(a) forming a first via through the first substrate;

(b) forming a second via through the second substrate; and

(c) forming a first anchor on the second substrate, wherein the first anchor comprises a first member that is movable in the second plane, and wherein the first member comprises the first electrical contact; wherein each of the first via, second via, and first anchor comprises ferromagnetic material; and

(ii) providing a second magnetic core, wherein the first magnetic core and second magnetic core collectively define a closed magnetic circuit, and wherein the second magnetic core is provided by operations comprising;

(a) forming a third via that is through the first substrate;

(b) forming a fourth via that is through the second substrate; and

(c) forming a second anchor on the second substrate, wherein the second anchor comprises the second electrical contact;

wherein each of the third via, fourth via, and second anchor comprises ferromagnetic material;

wherein the first magnetic core and second magnetic core are dimensioned and arranged to collectively channel the magnetic field through the electrical switch, and wherein the first arrangement enables magnetic coupling between the first and second via and between the third and fourth via.

14. The method of claim 13 further comprising:

providing a third electrical contact;

providing a fourth electrical contact, wherein the third electrical contact, first coil, and fourth electrical contact are electrically coupled;

providing a fifth electrical contact that is electrically coupled with the first electrical contact; and

providing a sixth electrical contact that is electrically coupled with the second electrical contact;

wherein the first substrate comprises the third electrical contact, fourth electrical contact, fifth electrical contact, and sixth electrical contact, and wherein the first substrate comprises a first surface and a second surface, and wherein the first coil is proximal to the first surface and distal to the second surface, and further wherein each of the third electrical contact, fourth electrical contact, fifth electrical contact, and sixth electrical contact is proximal to the second surface and distal to the first surface.

15. The method of claim 13 further comprising providing a second coil for augmenting the magnetic field, wherein the first substrate comprises the second coil, and wherein the second coil is substantially planar and lies in the first plane.

16. The method of claim 13 further comprising providing a second coil for augmenting the magnetic field, wherein the first substrate comprises the second coil, and wherein the second coil is substantially planar and lies in a third plane that is substantially parallel to the first plane, and further wherein the first coil and second coil are substantially concentric.