CLAIMS

1. A battery sorting apparatus comprising:

a base;

an imaging device mounted to the base;

a measurement device mounted to the base;

a platform movably coupled to the base, and

a controller coupled to the imaging device, the measurement device and the platform;

wherein

the imaging device is configured to capture an image of a battery carried by the platform to determine an actual orientation of the battery;

the platform is moveable relative to the base to align the battery along a predetermined orientation of the measurement device and to position the battery under the measurement device;

the measurement device is configured to measure electrical characteristics of the battery to determine a grade of the battery;

the controller is configured to assign the grade to the battery;

the measurement device comprises at least two probes coupled to the controller, wherein the at least two probes are aligned along the predetermined orientation, and

the at least two probes comprise a negative probe, a first positive probe and a second positive probe, wherein the first positive probe is positioned spaced apart from the negative probe at a first pitch, and the second probe is positioned spaced apart from the negative probe at a second pitch greater than the first pitch.

2. The apparatus as recited in claim 1, further comprising a slider mounted to the platform, a leadscrew rotatably coupled to the base and threadedly coupled to the slider, and a first motor coupled to the leadscrew and the controller, wherein the first motor is configured to rotate the leadscrew to move the slider and the platform relative to the base.

3. The apparatus as recited in claim 1, wherein the platform comprises a first stage slidably coupled to the base and a second stage rotatably coupled to the first stage, wherein rotation of the second stage aligns the battery from the actual orientation to the predetermined orientation.

4. The apparatus as recited in claim 3, further comprising a second motor coupled between the first stage and the second stage for rotating the second stage relative to the first stage.

5. The apparatus as recited in claim 3, further comprising a fixture mounted to the second stage for clamping the battery to the second stage.

6. The apparatus as recited in claim 5, wherein the fixture comprises a bracket mounted to the second stage and a pair of clamps movably mounted to the bracket, wherein the pair of clamps is movable towards each other for gripping a battery therebetween and away from each other for releasing the battery.

7. The apparatus as recited in claim 6, wherein the bracket is movably mounted to the second plate and the apparatus further comprises a first actuator coupled between the second stage and the bracket, wherein the first actuator is operable to move the bracket and the pair of clamps relative to the second stage.

8. The apparatus as recited in claim 7, further comprising a second actuator coupled between the bracket and the pair of clamps, wherein the second actuator is operable to move the pair of clamps toward each other to grip a battery therebetween and away from each other to release the battery.

9. The apparatus as recited in claim 1, wherein the measurement device comprises a rack mounted to the base and the at least two probes are movably mounted to the rack, wherein the at least two probes are movable relative to the base to vary a distance between the at least two probes and the base.

10. The apparatus as recited in claim 9, further comprising a third actuator coupled between the bracket and the at least two probes to position the at least two probes at variable heights above the base.