



Case Study

We turn good ideas into great products.

MOTOROLA

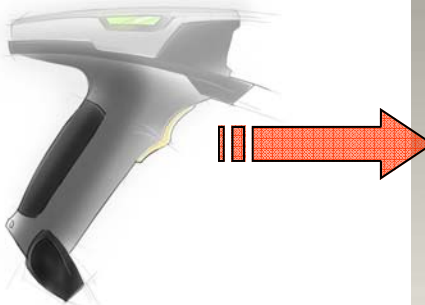
BARCODE SCANNER



Barcodes have become an essential part of modern civilization since making its first appearance labeling railroad cars in the 1960s. The use of barcodes is now widespread and the underlying technology is constantly being improved by leaders in the field. Today Motorola's bar code scanners are the foundation of mobile enterprises, providing superior data capture performance and seamless integration with other networks and information systems. Porticos has been involved in designing many of Motorola's scanners and scanner accessories including the MT2000 series of mobile terminals.



One challenge to these type of hand held devices is that the industrial design surfaces required to create the ergonomic design are complex and must be engineered to facilitate injection molding. Contoured parting lines, draft analysis and innovative arrangement of internal structures to prevent thick wall sections are all important. Porticos engineers worked closely with tooling engineers, hardware engineers and industrial design to solve the challenges. The result is a beautifully balanced hand held cordless device that is expected to surpass the Motorola Phaser to become the defacto handheld scanner for business.



ID SKETCH CONCEPT



ENGINEERED PRO-E MODEL

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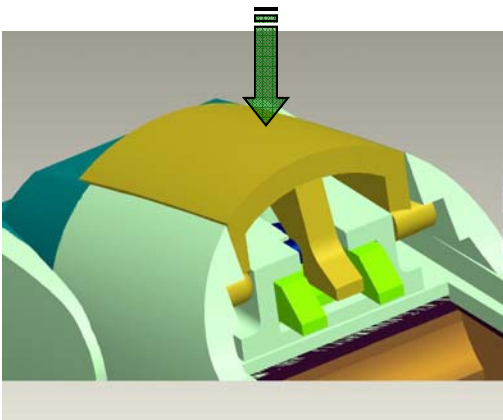
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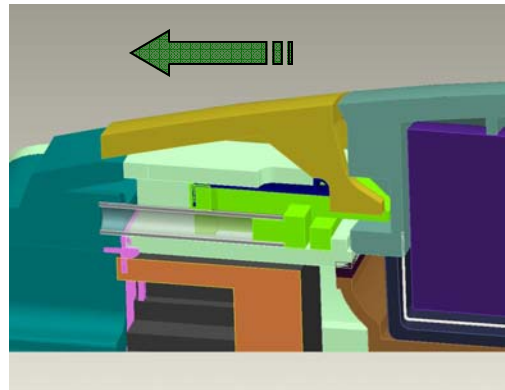
BARCODE SCANNER

To meet the 6 foot drop requirement in the MT2000 product required developing a battery latching and contact solution that would ensure the battery remained attached to the unit without interruption of power to the device. To solve the battery retention requirement, Porticos developed a novel two motion latch design. The issue with single direction latch mechanisms is that G forces caused by drops in the direction of latch activation can cause the latch to move and disengage. This cannot be overcome by large latch spring forces because there comes a point where the spring force is too large for the user to operate. The two motion design requires that the latch be operated in two different axis before disengaging. The motion is simple to operate single handedly but impossible to defeat in drop scenarios.

FIRST STEP: PUSH BUTTON DOWN TO ENGAGE THE PRIMARY LATCH AND ALLOW LATERAL MOTION



SECOND STEP: MOVE BUTTON LATERALLY TO DISENGAGE LATCH FROM BATTERY. SPRINGS EJECT BATTERY AND RETURN LATCH TO NOMINAL POSITION



Similarly a two plane battery contact solution was designed to ensure that one of the contacts would always be out of plane with G forces induced by the drop impact. In this way electrical connection would be maintained during all drop scenarios.

