

## TEST: Student Projects\*



### Fold it and Forget it: A Dropside Crib Alternative

**Problem:** Drop-side cribs are recalled by the millions because they cause entrapment, injuries, and death.

**Solution:** A hinged trapezoidal cutout with a 180-degree rotation prevents children from falling out and a rubber receiver prevents from pinching their limbs.



### The E-Z-Baby Highchair

**Problem:** A significant number of children are injured by falling through leg holes and pinching limbs.

**Solution:** A highchair with a deep cloth seat, elastic leg bands, and a removable one-piece tray prevents a child from falling, climbing out, and opening the restraints.



### The Alterna-Swing

**Problem:** Baby swings intended to sooth infants often times result in serious injuries such as positional asphyxia.

**Solution:** A swing with an A-frame base and a parallelogram frame swings at a constant level to keep the infant in a stable and safe position.



Final design of the "shopping basket" baby carrier

### Baby Carrier Latching Mechanism

**Problem:** Frequent malfunctions have been reported in carrier locking systems causing great harm to the infant occupant.

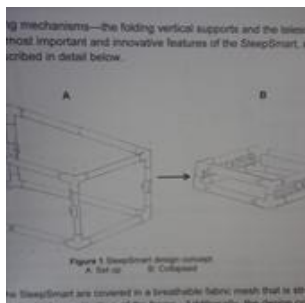
**Solution:** A basket style carrier with self-locking handles and pivots that come together via a ball and socket latch are hard to break and easy to operate.



### The Infant Fortress

**Problem:** Current models of bassinets have injured and killed thousands of children by collapsing and causing suffocation, entrapment, and falling.

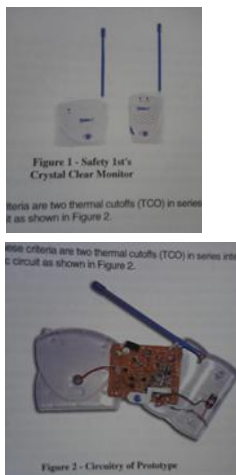
**Solution:** Foldable rubber coated base with hinges attaching a breathable mesh top provides portability and stability.



### The SleepSmart: A Travel Sleep Bed

**Problem:** Used as a crib alternative, this travel bed was never tested to a safety standard. It has been recalled after one death and others being entrapped in the tent.

**Solution:** A lightweight portable travel bed that contains no collapsible side rails and incorporates mesh on the sides which makes it less prone to suffocation. The product is easily assembled and disassembled to accommodate parents.



### Baby Monitor Safety Prototype

**Problem:** Baby monitors pose potential risks to infants as they often overheat and in certain cases have even caught fire. Additionally wires connecting certain monitors to power outlets pose an entrapment and strangulation hazards to curious infants.

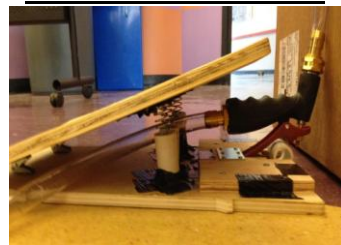
**Solution:** the design of this baby monitor includes two thermal fuses to the circuitry. If the model overheats, the fuses will shut off permanently. Users will be notified of the problem through a static noise and the product can be sent back for inspection as overheating is normally the cause of a manufacturing defect. Furthermore, the monitor does not contain any external wires or cords that a baby could potentially become entrapped in.



### The Seahorse

**Problem:** The bath seat deaths are related to suction cups loosening, the seat tipping over meaning the baby is stuck face down in the water and entrapment concerns. Most of the deaths have occurred when parents, overconfident in a bath seat's ability to keep their baby safe, had left the room even for a few minutes.

**Solution:** The Seahorse is a completely new take on how to bath one's child. A secure harness is strapped to the parent and provides comfortable and safe support to the child as it is bathed. As the child is attached to the parent, the dangers posed by unattended children during bath time are no longer present. The product is made of baby-friendly, breathable material in a colorful and appealing pattern for less than \$30.



### Redesigned Baby Bath-Seat

**Problem:** The bath seat deaths are related to suction cups loosening, the seat tipping over meaning the baby is stuck face down in the water and entrapment concerns. Most of the deaths have occurred when parents, overconfident in a bath seat's ability to keep their baby safe, had left the room even for a few minutes.

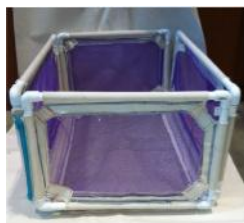
**Solution:** A baby bath-seat inspired by infant seats is used to cradle the baby in the bathtub. The innovative component of this design is a pedal that lies outside of the tub which controls the water flow. This requires the parent's presence, reducing risk of parent's absence and the risk of drowning.



### The Safety Net

**Problem:** The slatted walls of cribs are too far apart from each other, leading to entrapment hazards. As babies grow older, they can climb out of the crib and fall to the ground, resulting in serious injuries.

**Solution:** Mesh sides instead of slats which allow breathability but the holes are not big enough for baby's finger and acts as a barrier between the child and the slat wall. Additionally curved covers which make it more difficult for the child to grasp and climb on.



### The Baby Bungalow

**Problem:** Many travel cribs on the market are bulky and unsafe. From November 2007 to April 2010, there were 147 crib-fatalities and 35 were caused by structural problems within the portable cribs. Locking mechanisms are often unreliable and can lead to injury.

**Solution:** Five rectangular frames in s-shape connected by plastic hinges, the travel crib frame is plastic durable, lightweight and sturdy. Additionally there is breathable mesh secured to each panel with canvas fabric loop to prevent suffocation and ensure a safe sleeping environment for baby.



### The Safe Sleeper

**Problem:** Portable cribs are recalled by the millions because they cause entrapment, injuries, and death. Previous folding V-shaped designs have collapsed on a children's necks and limbs, causing injury and death. Additionally, many full cribs are expensive and bulky.

**Solution:** A folding leg design prevents the crib sides from collapsing and entrapping a child's head or limb. The zipped in mattress and mesh walls reduce the risk of a child suffocating in the crib. This crib is lightweight and stores easily.



### FerroForce: The Magnetic Glove

**Problem:** Children love playing with and experiencing the magic of magnets. However, small magnets can be swallowed by children and pose the risk perforating internal organs.

**Solution:** A magnetic ball and glove set was designed to reduce the risk of magnet consumption. The main component is a set of athletic gloves with magnets attached to the palm, and a light-weight ball with fuzzy magnetic strips webbing the surface. The child can interact with this alone, or with a friend playing catch. The magnets are adhered to the glove and ball so that the risk that small unattached magnets pose is eliminated, while still providing the child a fun magnetic toy.



### Magnetris

**Problem:** Small magnets can be swallowed by children and pose the risk perforating internal organs, leading to injury and death. Children described to the team that they become quickly bored of playing with regular magnets.

**Solution:** The team designed a magnetic spin off of the popular puzzle game, Tetris. The magnetic puzzle pieces are too large to swallow and attach to a magnetic board for play. The game is accompanied by different design patterns for the children to replicate within time limits, to keep their interest and develop their problem solving skills.

\* These products are student designed ideas and have not been tested for safety



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