

Crossbow 2.0

In the MAGE gaming environment, it can be beneficial to have a weapon with high accuracy and adjustable range. The crossbow emits narrow IR beam MIRP packets to incinerate enemies. The crossbow must also have an adjustable IR range. A loaded bolt can be drawn by the user and released at any time. It can be destroyed or damaged via IR attacks.

1. General Description
 - a. The crossbow is an arm mounted weapon capable of emitting and receiving MIRP packets.
 - b. The crossbow will use a system of swipe and tap gestures to control the crossbow.
2. Communication with the MAGE system
 - a. The crossbow must communicate with the user's HIU system over CANbus.
 - b. It must be able to take damage from only valid enemy MIRP packets.
 - c. It must transmit an "Im Dead" packet through CANbus to the HIU when the crossbow has been destroyed.
3. Crossbow mechanics
 - a. The crossbow will take in inputs from the user, utilizing swipe and tap gesture commands i.e. using capacitive touch or touchscreen/GUI.
 - b. The crossbow firing mechanism will be controlled using swipe gestures.
 - c. The loading and reloading mechanism will be controlled using tap gestures.
 - d. There should be a cool down period between firing consecutive shots.
4. MIRP transmission and reception
 - a. The crossbow must be able to transmit valid MIRP attack packets, at varying distances.
 - i. The distance is proportional to the strength of the swipe gesture.
 - ii. Distances should be from 5-45 feet at 5 foot increments with no more than 10% error rate at the max distance, and no more than a 15 degree spread.
 - b. The crossbow must be able to receive valid MIRP packets from all angles.
5. Visual and audio indication
 - a. The crossbow must indicate visually and audibly when a bolt has been loaded.
 - b. It must indicate visually and audibly when a bolt has been fired and when the crossbow has been hit by an enemy MIRP attack.
 - c. The crossbow must indicate to the user how many bolts remain.
6. Form factor and casing
 - a. The crossbow should arm mounted with minimal wire exposure.
 - b. All circuit boards and power supplies should be enclosed/packaged appropriately.
 - c. Casing must be visually appealing.

7. Power

- a. The crossbow must be powered with an internal power supply.
- b. The crossbow should be able to operate through at least 2 hours of game play.