Precision Technology for the Early Detection of Distress in Horses

VTIP 20-113: “Precision Technology for the Early Detection of Distress in Horses”

THE CHALLENGE

The United States’ equine industry is a $50 billion direct economic impact to the U.S. economy with an estimated total impact of $122 billion. In Virginia alone, the economic impact of the equine industry is estimated at $1.2 billion. The vitality of this industry is damaged by a persistent, prevalent, and difficult-to-predict metabolic disease called colic. Colic is estimated to result in $115 million in losses annually. A major challenge in treating colic is that horses often fail to show conclusive clinical symptoms until the condition has progressed to the point that surgical intervention is required. Heart rate spikes are an early warning sign.

OUR SOLUTION

This project will produce a low-cost wearable heart rate monitor for the detection of heart rate elevations associated with pain, in particular the potential life-threatening condition of colic in horses. The wearable will leverage commercially available microprocessors, IR sensors, and WiFi or Bluetooth data transfer to alert horse owners when heart rates change unexpectedly. We will specifically target a low-cost solution to ensure the device will be the first of its kind that is marketable to the average horse enthusiast.

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