AMANDA SMITH and KRISTY HENSON, Forensic Science, Fairmont State University, Fairmont, WV, 26554, Assessing accuracy of 3D scanning on fingerprint identification.

Fingerprints have unique ridge characteristics that can be an important part in criminal investigations and can help match individuals to a crime. Common methods of fingerprint extraction contaminate evidence and can damage the fingerprints that are present. The purpose of this study is to test the capability of 3D scanning and digitizing fingerprints using an Xbox 360 Kinect V1. Using a 3D scanner to extract fingerprints can be cheaper and potentially less invasive than the common extraction methods used today. An Xbox Kinect V1 and the 3D scanning program Skanect was used to obtain the 3D scans. Scans were collected using various techniques: directly from volunteers' hands, dusted latent fingerprints left on objects of different surfaces, and plastic fingerprints left in clay. Once the object was scanned, post-processing included adding the original color overlay back to the object to increase the detail of the scanned items. Preliminary results show that the Kinect was able to digitize all surfaces scanned. Dusted latent prints appeared in the scans but no unique identifying characteristics of the fingerprints were able to be examined. The Kinect V1 is not advanced enough to obtain the complete detail of the fingerprints left on the objects or to show any ridge detail on the scans of the volunteers. This research has potential but a more advanced scanner is warranted to capture the unique ridge characteristics on fingerprints.