CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY

Name(s)
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Project Number
J1308

Project Title
Can't Touch This: A Study of Latent Fingerprint Detection

Abstract

Objectives/Goals
My objective was to determine how the latent fingerprint revealing technique of dusting would be altered by the powder applied to the print, and whether these prints revealed through the dusting technique would be more or less legible than when revealed through the vacuum metal deposition method. I also tested whether these methods would work better on porous or non-porous surfaces.

Methods/Materials
Six subjects each applied their fingerprints four times to six different surfaces ranging from porous to non-porous. The prints were revealed through one version of the metal deposition technique and three versions of the dusting technique, the latter method using three different types of powder. Once visible, the prints were compared to the subject's ink prints, the control, and were then rated according to how many ridge characteristics were visible and whether the print could be correctly matched to the subject's ink one.

Results
The vacuum metal deposition technique was less effective than all three versions of the dusting method. As I predicted, porous surfaces were hard to find prints on, but it was relatively easy to reveal and retrieve prints from non-porous surfaces, such as glass and aluminum foil.

Conclusions/Discussion
I realized that dusting, an older method of latent fingerprint detection, was more effective than the new, more expensive method of vacuum metal deposition. This information is beneficial to those who work in the crime scene industry, as many are on a tight budget and will now know not to invest in the newer method of vacuum metal deposition when the older method, dusting, still works much better.

Summary Statement
I investigated various forms of latent fingerprint detection methods on a variety of different porous and non-porous surfaces.

Help Received
Mother helped cut pages for my board; Used vacuum chamber at UCSB under the supervision of Nancy Eisenmenger.