

Venipuncture Assistance System

Venipuncture

- The most commonly performed invasive routine
- Establishes access to venous blood-stream
- Performed for various reasons



The Problem

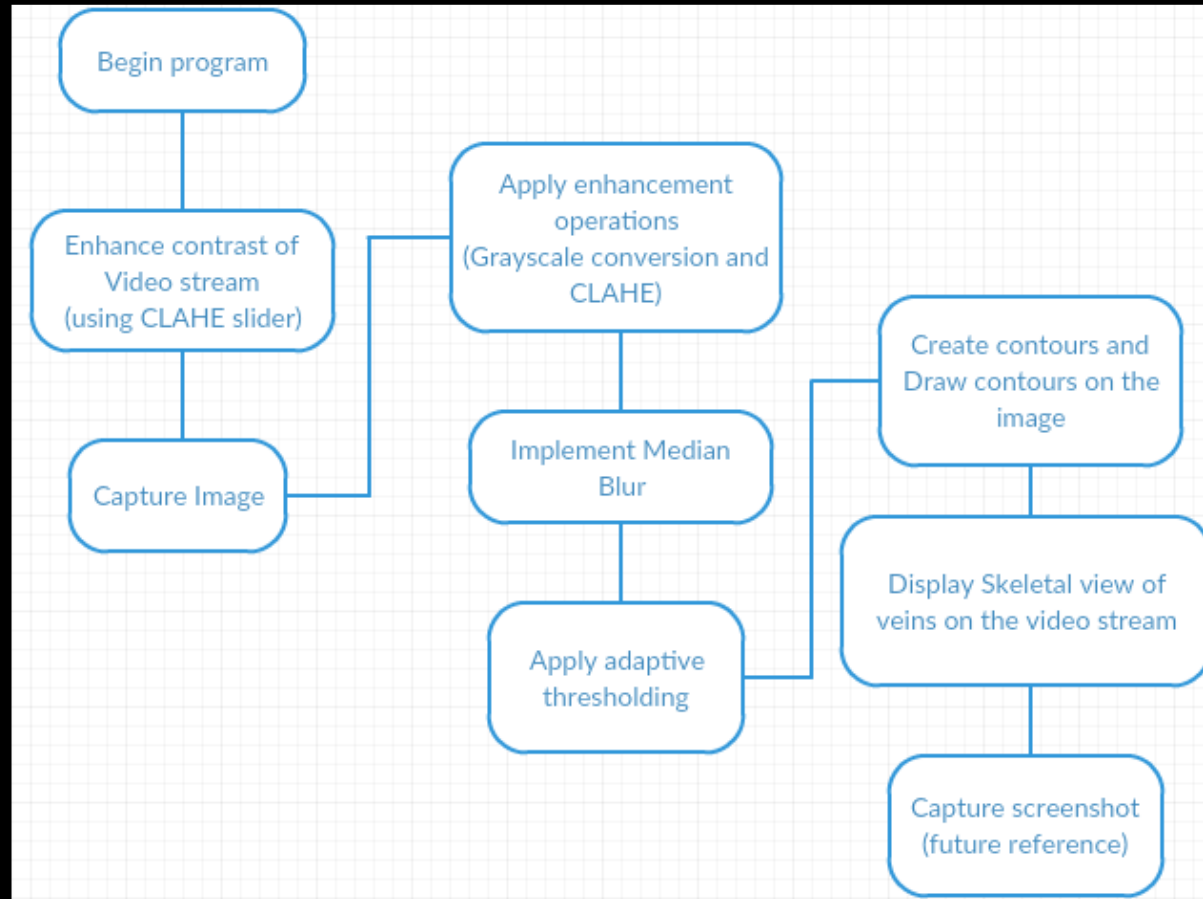
- Although common, it is not straightforward
- The process is carried out using touch and sight
- First stick failure rates have been estimated to range from 20% to 33%
- In children or elderly, it is as high as 50-70%
- Multiple attempts have to be made

How serious is it?

- The adverse effects fall under three classes
- Vasovagal injuries: Sudden reflex stimulation of Vagus Nerve (~5%)
- Pain and Bruising: Least serious, most common (~15% on average)
- Nerve Damage: Potentially disabling (1 in 5000 approx.)

Our Solution

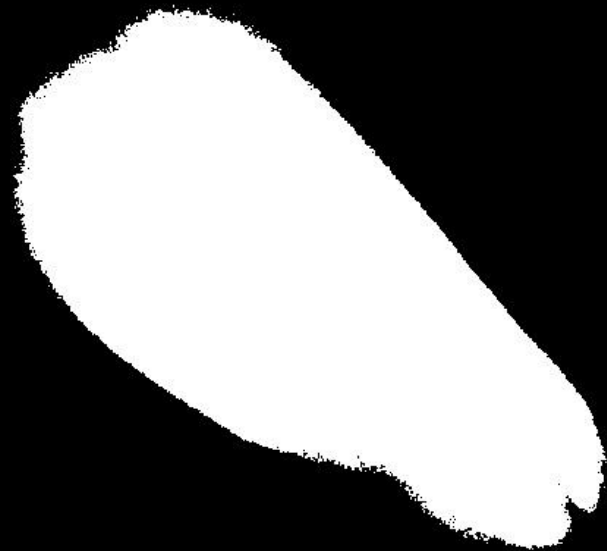
- Use Near Field Infrared Light to take an image of the veins
- Process this image to obtain the skeleton of veins
- Identify veins by contouring
- Draw the veins on a live feed to provide augmented reality style solution
- DEMO



Results



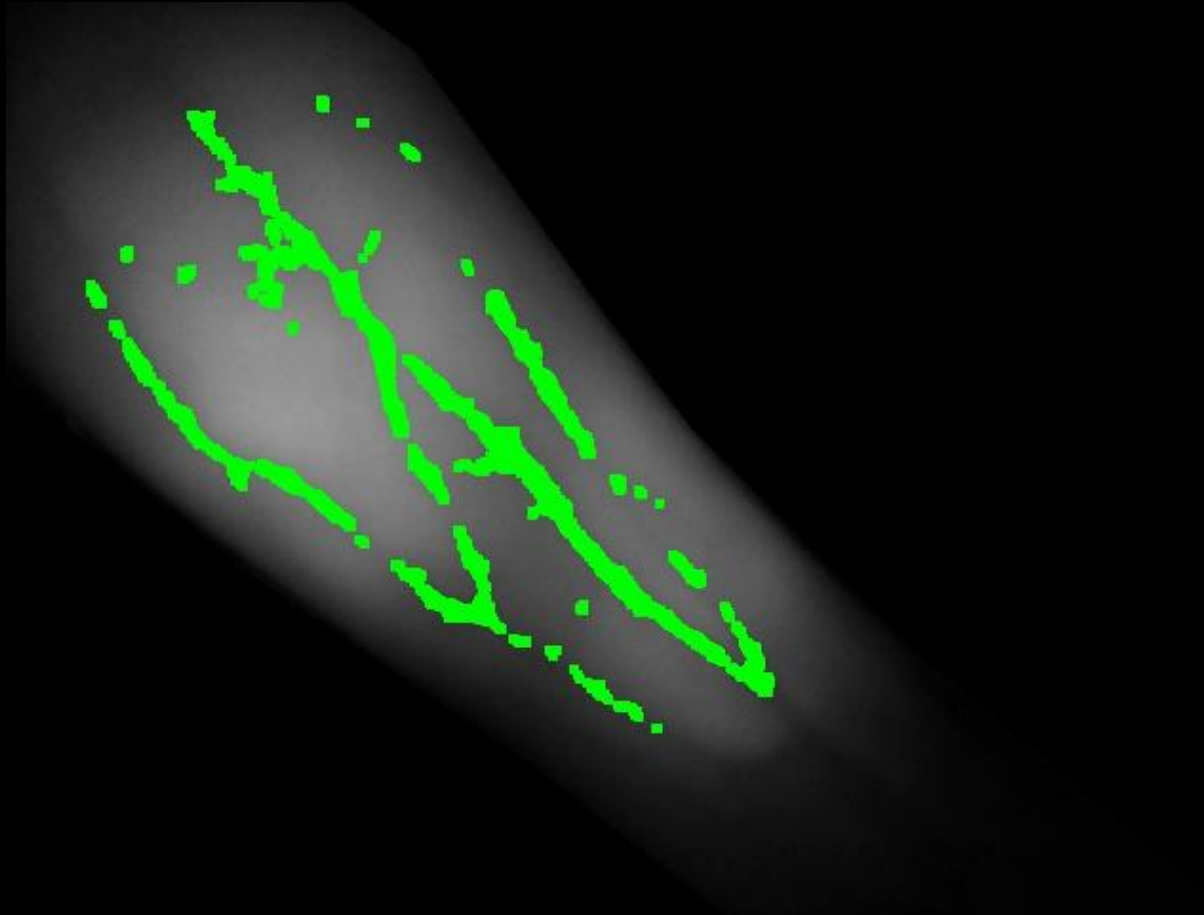
Results



Results



Results



Results

