Vein Tracer

Redefining Health Care Industry

Status Quo

- Mostly routine invasive procedures carried out by medical professionals is venepuncture. But even experienced professionals have difficulty in locating a suitable vein in some cases, due to patient's age (elderly or paediatric), obesity or even skin color
- Difficulty to find veins results to multiple venipuncture attempts, leading to patient discomfort, dissatisfaction and delayed treatment. Infusion into a nerve can cause a sudden shot of pain to the patient.
- Apart from normal IV infusion, doctors often find it difficult in surgeries related to varicose vein, sclerotherapy etc for accessing the target vein.

"Recommendations for Improving Safety Practices With Short Peripheral Catheters", which was included in the March/April 2014 issue of the Journal of Infusion Nursing says
"Incorporate vein visualization technology as a routine strategy for difficult or poor venous access. Visualization technology can improve success rates, decrease unsuccessful insertion attempts."

Vein visualisation

Vein illumination

- The Device is envisaged for high quality transillumination to see even deeply embedded subcutaneous veins
- Deoxygenated hemoglobin has higher light absorption coefficient then Oxygenated hemoglobin. Light is mainly absorbed by deoxy-Hb.
- Visible light of wavelength 630 nm - 650 nm (Red) is used to locate vein in thick and dark skinned people whereas light of 540 nm (Orange) light source can be used for pediatric and fair skin patient.
- The device helps medical professionals in identifying veins of any nature even in indoor dark room ambience

Vein visualisation

NIR (Near Infra Red) vein imaging

- Unlike muscle and skin, blood is a stronger absorber of NIR radiation, which contrasts the subcutaneous vessels from skin and muscles in NIR imaging
- Exposing the subject to infrared illumination of a specific wavelength, vein images can be captured and analyzed.
- It is totally a non invasive technique
- Real time projection of veins with accuracy on the skin surface
- Deeper veins (lying even more than 15 mm in depth) can be viewed using this technique

Applications and Advantages

Vein Visualization is useful With a Variety of Patients like

- Old age People, Dark-skinned patients, Obese patients whose veins may not be visible easily even after tourniqueting
- Patients having many diagnostic or therapeutic intravenous procedures
- Burn victims
- Oncology patients under chemotherapy
- Neonatals

Excellent and necessary tool for Emergency units, Ambulance, Nursing educationists and medical practitioners

Advantages:

- Portability
- No more guess work for vein infusion
- Simple to use
- More timely treatment
- Builds satisfaction and confidence in patient
- Accurate first attempt venous access, even for neonates

Existing Products

Vein Viewer - Using LED light of specific wavelength (manufactured in US and distributed worldwide)

Accuvein - Using IR rays with the projection module (manufactured in US and distributed worldwide)

In the western market already products for vein access exists. Indian medical industry use these equipments after importing them paying huge amount as tax. A simple version of the vein detector costs atleast $630 + tax and the projection type costs atleast $3500 + tax

Our Proposal

To reverse engineer these products, develop them at an affordable rate. **We have been already successful in Indigenous development of LED vein illuminator for an amount less than $2**

Similarly our team is optimistic enough to develop the projection type vein viewer at a cost lesser than $100

OUR AIM IS TO PULL BACK THE EXISTING INDIAN MEDICAL INDUSTRY FROM THE HANDS OF BUSINESS LOBBYISTS SO THAT COMMON PEOPLE HAVE ACCESS TO QUALITY HEALTH CARE FACILITY AT AN AFFORDABLE COST

Our proposal contin..

Aim 1: To develop handheld Vein Detectors which aids health professionals to detect the complex venal system beneath the skin which can not otherwise be seen by our naked eye. The simple version consist of LEDs at a specified wavelength arranged in the periphery of a ‘C’ shaped device

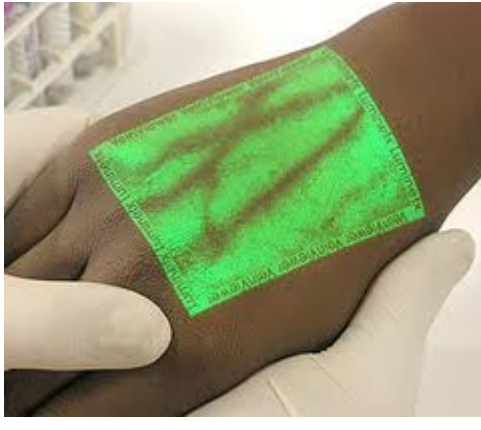
Use: Usable in simple IV infusion to detect a proper vein lumen

Status: The prototype of the simple version has already been made and is under test for commercial acceptance and for the test of market strategy.

Aim 2: To develop the projection type vein contrast enhancers which would give even more exact image of the vasculature on the surface of the skin in real time

Use: Usable in vericose vein surgeries and complex other health care issues where exact location of vein needs to be traced

Status: Successfully tested the proof of concept but unable to develop a prototype due to lack of funds



Team

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He did his M.Tech In Photonics from IIT-K. He is interested in innovations and product development. He has work experience of approx. 1 year at EXL services.

Girish Nayak (IIT-B, 2011 Passout)

He did his M.tech from IIT-B in Electrical Eng. His passion for entrepreneurship bring him in to business. He is founding member of Startup https://rime.co . He has work experience of 2.5 Year @ IBM-ISL. .

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He did his B.tech in electronics and communication engineering from Govt. COE, cherthala. He is a born techie, is heavily into robotics and a good team cheer.