

DERMA CARE – AN INSTANT SOLUTION TO SKIN ALLERGIES AND BURNS.

INTRODUCING COMPUTER VISION AND DEEP LEARNING IN IDENTIFYING THE SKIN ALLERGIES AND INTENSITY OF THE BURNS FOR INSTANT FIRST AID AND MEDICAL HELP.

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INTRODUCTION

The largest organ in the body is the skin. It keeps harmful bacteria out while also regulating internal temperature and allowing the body to retain fluids(preventing dehydration).Skin diseases are very common. Skin allergies are one of the most prevalent and challenging diseases to

diagnose due to a lack of awareness and knowledge. There are a variety of skin problems that require immediate treatment, such as bug



bites, burns, and so on. For example, the degree of your burn

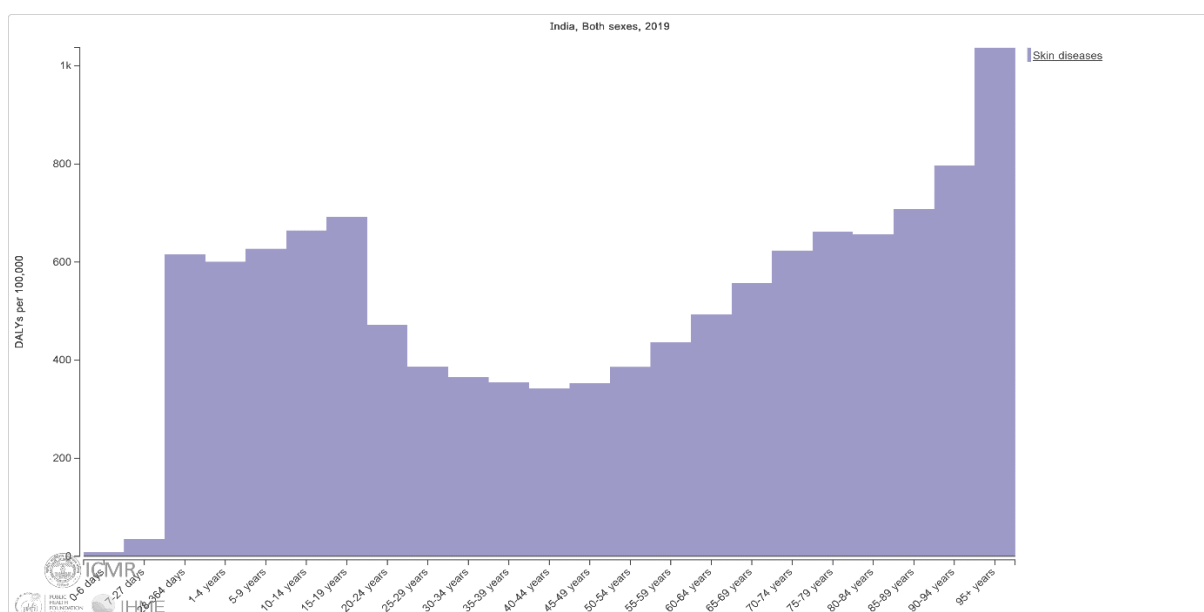
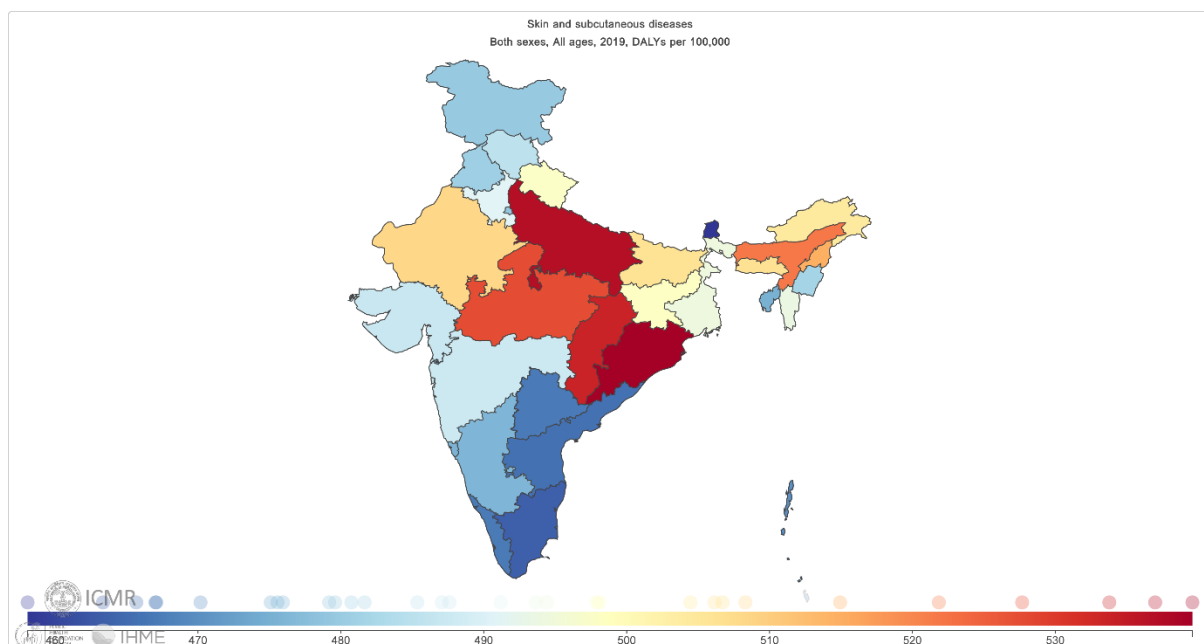
is evaluated when you visit a doctor for burn treatment. Additional treatment is advised if the burn covers more than 10% of your total body surface area, is very deep, is on the face, foot, or groin, or fulfills other criteria. However, this could be a lengthy procedure, and in some circumstances, the doctor may not be available nearby. During such emergencies a proper guided first aid is required. Emerging developments in computer vision and deep learning enable us to obtain promising and accurate results in a short period of time.

DERMA CARE APP

An app can be designed in such a way where, people can provide input via the smartphone cameras, and the corresponding skin problem is identified and detected using computer vision and image processing. Further the immediate diagnosis can be recommended. This app also gives notification to the nearer emergency centre according to the severity of the skin problem.

STATISTICS

The percentage of skin diseases in the general population ranges from 7.9 percent to 60 percent in different geographical regions of India. Although skin disorders have a low mortality risk, they cause significant disability, and the non-fatal burden of skin and subcutaneous diseases in India exceeds that of cardiovascular diseases. In 2017, the age-standardised years lived with disability for cardiovascular illnesses in India were 332.96, compared to 455.06 per 100,000 for skin and subcutaneous disorders. According to age-standardised years lived with disability, skin diseases ranked 10th in the global burden of disease study in 2017, whereas cardiovascular diseases ranked 12th.



With the above two figures, we can understand the necessity of the app. This app can be designed for smallest of sunburns to fire accident burn aids.

TARGET SPECIFICATIONS AND CHARACTERIZATION (YOUR CUSTOMER CHARACTERISTIC)

From the figure 2, It is clearly visible that, all age group from infants to the old age suffer from skin disorder. The most common skin diseases in regard of different age groups are; contact dermatitis in the 0–2 years and 3–5 years age groups, warts in the 6–11 years age group, and acne vulgaris in 12–16 years age group. The most common disease groups are; infectious diseases (24.62%), eczema (21.95%), acne and follicular diseases (18.45%) and allergic skin diseases (11.02%). The most common diseases were acne vulgaris (17.82%), warts (10.03%) and irritant contact dermatitis (9.42%).

AIM TARGETS:

1. Hospitals (Government & private) and healthcare sector.
2. Pharmaceuticals.
3. Fire and safety department.
4. Restaurants – safety regulations in immediate first aid.
5. Schools and education sector.

BENCH MARKING ALTERNATE PRODUCTS (COMPARISON WITH EXISTING PRODUCTS/SERVICES)

First Derm – Best Dermatology Services App

First Derm, a free app for Android and iOS, allows users to consult an online dermatologist on-demand for convenient answers, treatment plans, and prescriptions for non-emergency skin conditions.

Cureskin

The artificial intelligence-based app was developed by two engineers previously working by Google, and it aims to compensate for the lack of dermatologists in India. In the continent-sized country, approximately 11,000 skin care specialists are working, which means less than one dermatologist for 100,000 people.

Cureskin aims to help alleviate the situation. It can diagnose six types of common skin conditions – pimples, acne, scars, dark spots, pigmentation, and dark circles.

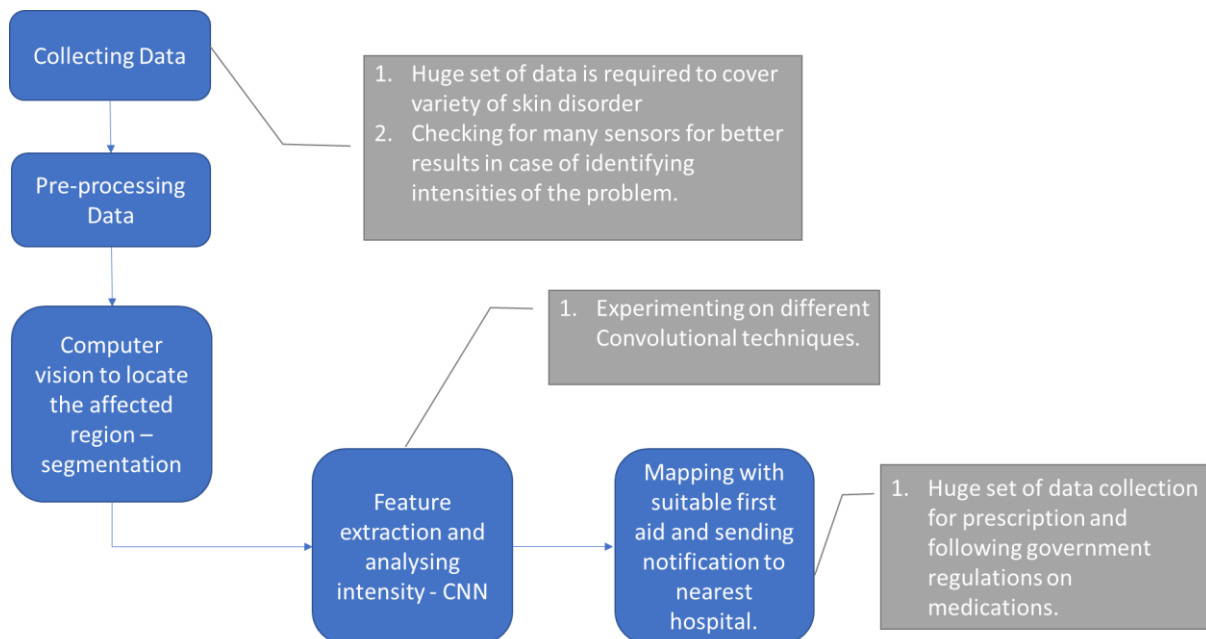
Apollo247

This platform is private and secured as it allows us to consult our preferred doctor and share reports anonymously. Apollo247 is that it offers a free follow-up which means you can connect to a doctor within 7 days of your consultation

Practo

Practo lets you book an appointment with a doctor and talk to him over chat or on a video call. Both paid and free consultations are available on the portal. All the queries on the app are answered with the utmost information.

METHODOLOGY



The main challenge of this project is the data collection. Many benchmark dataset does not provide a huge variety of the skin disorder. Combining many datasets and creating more with the help of healthcare assistance could be one the solution to this problem. On the other hand experiments can be conducted on various sensors to capture image for better classification. For example Hyperspectral sensors can be used, where we could analyse with range of wavelengths. For the feature extraction, many convolutional neural network techniques can be experimented. With the results, the first aid can be provided.

CONCLUSION

Skin disease are very common and the requirement for an immediate aid is increasing. Sun burns, rashes, acne, skin allergies, fungal and bacterial skin disorder, insect bites, burns and so on require immediate cure. This app can be very useful and well as profitable as it covers most of the sectors.

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