## horizontal line

Marcose

Riya Suntwal, Roopal Mittal,Masudha Meher

Indira Gandhi Delhi Technical University for Women (IGDTUW),

James Church, New Church Rd, Opp. St, Kashmere Gate, New Delhi, Delhi 110006

# OVERVIEW

The earlier a disease is diagnosed, the more likely it is that it can be cured or successfully managed. When you treat a disease early, you may be able to prevent or delay problems from the disease.

The idea of this project is to put forward the major health issues like blood pressure, diabetes,etc. that are on the rise and may increase in the near future. Though health is becoming one of the major concerns in everyone’s life but it is unintentionally being neglected in the course of our busy lives.

So, we bring to you our product, ‘Marcose’, originating from the words ‘mark’ and ‘diagnose’ meaning that our device will scan a part of a human body and mark the area which are in effect of the illness and tell us the required diagnosis. Our product will comprise of a scanner which will be in the form of a camera and a sensor and the output can be viewed through an app of the same.

The product basically aims to provide the users of all age groups an easy, convenient and affordable way to get their disease diagnosed at an early stage. Moreover, the product is portable and easy to use which gives it an upper hand over the already existing scanning techniques. Along with being a user friendly product, Marcose would also provide its users a safe experience, as the tools and technologies used would not cause any harm to the user in any way.

# ORIGIN AND DESCRIPTION

People ranging from different age groups are suffering from an illness they themselves are unaware of. We all have a busy schedule to cope up with, due to which we give a lower priority to our health. Most of the time, we try to compromise with our own health, without even thinking about the consequences in the long run. When things start to get worse, that’s when it hits us to consult a doctor. Then we have to take some time out, invest our time and money to get ourselves consulted by a doctor who charge us over ₹500. Even when we start to feel the slight effects of our illness we try to diagnose it with home remedies without even going to its root.

# EXAMPLES:

Let’s take a few of the examples:

1. Whitening of the nails: White spots that are seen on the nails are not always an indication of low calcium level in our body. It may also be an allergy to a nail paint or be a fungal infection.
2. Symptoms of Jaundice: The symptoms for jaundice are discolouration of skin, eyes and nails but sometimes the discolouration maybe because the person is weak from the inside and not maintaining a proper diet.
3. Detection of pregnancy: The detection of pregnancy can be done at home without urine test; instead a sensor could be used that will sense the pulse and will indicate if a lady is pregnant or not.

Many more such concerns can be marked down and diagnosed.

# SALIENT FEATURES:

This comes in very handy and can be used at any time, accordingly to the ease of the consumer.

Even a small symptom shouldn’t be ignored because the lifestyle of us, human beings have changed drastically as compared to our ancestors, who used to solve the smaller illness with home remedy.

With Marcose, you can easily mark the area and find its root cause and get the required diagnosis.

It is a one time payment, can be used in the long run, until the device gets trampled.

All the other detections that are made through blood tests can be made through a human eye.

From a simple color photo of the retina, you can tell how old the person is, what gender they are, what is their smoking history, their blood sugar level and blood pressure, Schmidt-Erfurth said.

Schmidt-Erfurth showed how such an AI algorithm could accurately spot signs of diabetes in the retina. Patients with diabetes frequently develop a condition called macular edema, which is essentially an accumulation of fluid in the macula, a layer of the retina responsible for sharp central vision. If left untreated, the macular edema can cause permanent damage and vision loss. The same algorithm could also detect the earliest signs of age-related macular degeneration (ARMD) and even predict how the disease will progress, Schmidt-Erfurth said.

# BELIEF FACTORS

This product as it has been already mentioned uses various IoT and ML (deep learning) models. We as developers and all in all as human beings try to take each and every aspect of this into consideration that none of harmful rays affect our eyes or whether it be any kind of internal damage done using this product. This is aimed to be done at a very low-cost, and the use of non-invasive methods is only at the support. We want this product to be easy-to-use, easy-to-carry, and easy-to-diagnose major health related issues which can otherwise be detected but by spending a bloat of money.

# GOALS

The major goal of the product is to provide its users a convenience and at the same time, an affordable way to diagnose a major health problem and suggest the possible treatments accordingly.

# TARGET AUDIENCE

This product aims to take into account all the people whether it be pregnant women or small children or old aged people who find it a little bit difficult to go through such a big process of scanning themselves in such big machines, the main aim of this project focuses on the aspect so as to make it easy to use, affordable and portable to scan different parts of our body to diagnose. If there is any kind of ailment they feel they are suffering through, the people who cannot afford paying money for diagnosis of any disease they are quite unsure about, can be helped at a very large scale.

# PROJECT COMPONENTS

The basic project components that can be involved in this project are the models of deep learning and computer vision control. The scanning of the eyes would be implemented through optical coherence tomography which states 3-D images of retina and allows it to examine deep down into a person's eye. Other project components include a scanner, and an OTM technique device.

# CORE TECHNOLOGIES AND TOOLS

Core Technologies and tools we use while building this product is different models

* Convolutional Neural Networks(ResNet)
* Amazon Deep Learning AMIs(Supports all popular deep learning techniques)
* Anaconda Framework

# COST EFFECTIVENESS

Cost Effectiveness will not be a big issue as this aims for a user handy and affordable health scan in one go. People are still so busy in their lives that they neglect their health and other related concerns such as metabolism, good digestive systems, etc. So, most of the people would accept the cost effectiveness of any health device that is readily available at your doorstep. People would want to use this product as customisation will be provided at a regular basis according to their choice. “Making available something that is cheap and economic and at the same time easily available and that too in the health sector is something that is hard to achieve and will be globally acceptable”.

# PRODUCT SUPREMACY AND FEATURES

Product supremacy as the names suggests means that how supreme is your product over other products and what all facets it has to offer to customers at the basis of cost and availability. Time and cost are the most important of all the criteria one cannot afford to wither. Hence, this product will take care of all the health related ways. As this product is an amalgamation of different Deep Learning and Machine Learning models and algorithms, it can be easily linked to our mobile devices with which any person can have a look of their own health records in an efficient manner. This product comes with a lot of cost effective measures as for a normal person to get himself a complete medical checkup, firstly he or she needs to go to a particular medical centre and has to pay unreasonable large amount of money, whereas this product comes at comparatively lower prices and is quite affordable.