

FOURTH INCREMENT

Introduction:

RoboCare – A human friendly robot, one's own personal doctor. As its name suggests, this robot takes good care of his companion right from diagnosing the disease to notifying the user the nearest practitioner who can prescribe medicines. All that the robot needs are few inputs from the user and it does all the work on its own. RoboCare does take help of the Smart watch and the Smart Phone of the user to provide many other functionalities. Thus, RoboCare can be regarded as a guide to make a human's life illness free.

Project Goal and Objective:

- Overall goal: To program a robot which can be used as a medical assistant.
- Specific objectives (problem statement): The main objective of the robot is to diagnose the disease that the user has depending on the inputs such as age, gender, symptoms, images etc. provided by the user.

Specific features:

The Robot will perform following tasks:

- Use facial recognition technique to authenticate the user.
- Collect the data from the user regarding the symptoms age and gender from his voice and would use Natural Language Processing and also images to identify the issue
- Diagnose the disease depending on the inputs provided by the user
- Suggest nearest doctor depending on the type of disease to the user
- Remind the user about his/her appointment by sending notification

Significance:

The robot provides the user with immediate information about the disease, nearest doctor and also keeps him notified about the appointment timings and prescription as and when it arrives from the doctor. Thus, the robot guides the user properly during its difficult times.

Fourth Increment Report

Existing API:

Used Android Studio 1.5.1 to develop the graphical user interface of the application and camera icon for capturing the testing image.

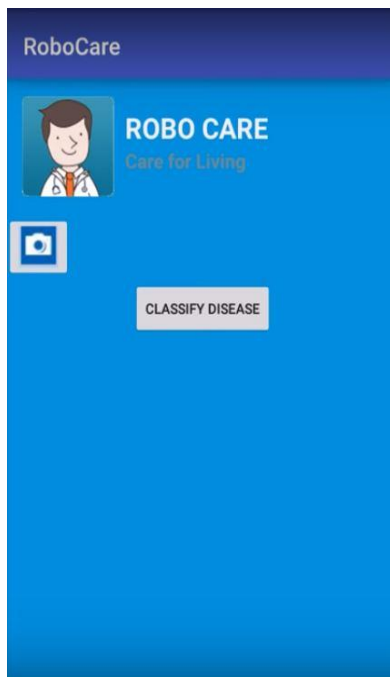
Design of Features:

- The training data set consists of the images of various skin diseases like Psoriasis, skin cancer, acne etc.
- The testing data comes from user directly through the app.
- After giving the testing image it directly invokes Spark for image classification through socket connection.
- For image classification we have used random forest algorithm and the classified disease directly sent to smart watch as a notification.

Dataset:

Developed a testing data of images consisting of information of various set of skin diseases.

Deployment:





Image_Classification - [C:\Users\Anuja\Desktop\Image_Classification] - [image_classification] - ... \src\main\scala\IPApp.scala - IntelliJ IDEA 15.0.5

```

// Split data into training (70%) and test (30%).
val splits = parsedData.randomSplit(Array(0.7, 0.3), seed = 111)
val training = parsedData
val test = splits(1)

// Train a RandomForest model.
// Empty categoricalFeaturesInfo indicates all features are continuous.
val numClasses = 10
val categoricalFeaturesInfo = Map[Int, Int]()
// val numTrees = 10 // Use more in practice.
// val featureSubsetStrategy = "auto" // Let the algorithm choose.
// val impurity = "gini"
// val maxDepth = 4
val maxBins = 100

val numOfTrees = 7 to(5, 1)

// Confusion matrix
0.0 0.0 2.0 0.0 0.0
0.0 2.0 1.0 0.0 0.0
0.0 0.0 4.0 0.0 0.0
0.0 0.0 0.0 3.0 0.0
0.0 1.0 0.0 0.0 2.0
Accuracy: 0.7833333333333333
16/05/04 21:28:38 INFO RemoteActorRefProvider$ResolvingTerminator: Shutting down remote daemon.
16/05/04 21:28:38 INFO RemoteActorRefProvider$ResolvingTerminator: Remote daemon shut down; proceeding with flushing remote transports.
Process finished with exit code 0
  
```



GitHub URL:

<https://github.com/anuja893/CS5542-Spring2016Group4>

Project Management:

Member Name: **Dara, Venkata Sai Sandeep**

Work Completed:

1. Worked on the GUI Part
2. Sending Notification to smart watch.
3. Connecting to M Lab Cloud.

Time taken: 20 days

Contribution: 25%

Member Name: **Podili, Venkata Krishna**

Work Completed:

1. worked on Image Classification part.
2. worked on GUI part

Time taken: 25 days

Contribution: 25%

Member Name: **Anuja Sawant**

Work Completed:

1. worked on image classification.
2. prepared image dataset.

Time Taken: 25days

Contributions: 25%

Member name: **Shuchita Khandelwal**

Work completed:

1. Prepared the final updated image dataset
2. Worked on camera feature.

Time taken: 20 days

Contribution: 25%

Bibliography:

<https://www.google.com/search?q=Acne>

<https://www.nlm.nih.gov/medlineplus/encyclopedia.html>

<http://seer.cancer.gov/tools/seerrx/>

<http://stackoverflow.com/> \ <http://www.mayoclinic.org/>