ASTHMA RISK PREDICTION USING MACHINE LEARNING



- K.MANOJ KUMAR, V.GAYATHRI, B.VINEELA, K.SHIVAKIRAN, P.PRAMOD

GUIDE · Asst Prof R RAVIKUMAR

INTRODUCTION

"Unlocking the Future of Respiratory Health"

Introducing Asthma Risk Prediction through Machine Learning. Our innovative approach utilizes advanced algorithms to forecast asthma susceptibility with unprecedented accuracy. By analysing diverse datasets, empower early intervention strategies, potentially saving lives and healthcare costs. Join us on the forefront of personalized medicine, where data-driven insights pave the way for proactive asthma management.



DATASET

Our dataset includes the collection of user inputs age, Smoking habits, Gender, Outdoor activities, outdoor job ,UV Index.



"Above50" mapped to 5 "41-50" mapped to 4 "19-30" mapped to 3 "31-40" mapped to 2



OBJECTIVES

- Effectively identify individuals at high risk of developing asthma before the onset of symptoms.
- Integrating clinical records, Generic data, Environmental Factors, and Lifestyle information to unveil patterns Impacting asthma development.
- The aim is to facilitate early Invention, Personalized Treatment, and Targeted prevention for reducing asthma's impact on Individuals.



User



"Yes" mapped to 1 "No" mapped to 0



"Extremely likely" mapped to 1 "Neither likely nor unlikely" mapped to 2 "Not at all likely" mapped to 0

"Male" mapped to 1 "Female" mapped to 0 UV "Low" mapped to 0 "Extreme" mapped to 1

RESULTS & DISCUSSIONS

The asthma risk prediction project employs SVM and Random Forest models for personalized asthma likelihood assessment. Through a Python GUI, user data undergoes preprocessing, leading to clear indications of asthma prediction, medication suggestions, and potential side effects displayed on a web interface, facilitating informed health management decisions.



Now web site Displays result

web page

The web site Display the Prediction result

User give inputs like Age, Gender Smoking Habit, Humidity ect
If the input is given then the python(GUI) web application sends the details to ML Model

Actions Dataction Surtam	Asthma Detection System
Astrima Detection System	Age
	Gender
	OutdoorJob
Ane	OutdoorActivities
u.a.e.	SmokingHabit
Gender	Pressure
	Temperature
Outdoorlob	UVIndex
00000000	WindSpeed
OutdoorActivities	
SmokingHabit	SVIN
	Random
Humidity	For ACT Score 10 to 19:
	Medicines:
Pressure	- Inhaled Corticosteroids (IC
	- Leukotriene Modifiers
Temperature	Natural Remedies:
A 101 AA	- Breathing Exercises
UVIndex	- Yoga - Omega-3 Fatty Acids
	- Quercetin
WindSpeed	Rare but serious side effects
	-Adrenal insufficiency (espe
	-Growth suppression in chil
Development	-Glaucoma or cataracts (wit

	0
	100
	1011
	23.9
	0
	6.7
(Predict
SVIN	Prediction: [12]
Random	Forest Prediction: [14]
0 to 19:	
osteroids (IC nhalers odifiers	(S)
P61	
cises	
Acids	
side effects	
tiency (espe	cially with long-term use of high doses) ng)
ataracts (wit infections	dren h prolonged use at high doses)



python (GUI) passes data to the machine learning model



The model predicts Whether Asthma

is controlled or not then it sends

the prediction to Python(GUI)

Machine learning Model

Machine learning Model

Predict

Increased risk of infection

CONCLUSION

Machine Learning may hold the key to optimizing treatment and reducing the impact of chronic asthma on patients. However, this potential can only be realized if we can solve critical problems: poor quality Information, choosing which factors are most Important, creating models that work well enough for use in hospitals .

REFERENCES

Predicting Continuity of Asthma Care Using a Machine Learning Model

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8835449/