Artificial Intelligence Use Cases

1. Real-Time Communication System Powered by AI for Specially Abled
2. Crude Oil Price Prediction
3. AI-powered Nutrition Analyzer for Fitness Enthusiasts
4. Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation
5. Digital Naturalist - AI Enabled tool for Biodiversity Researchers
6. Natural Disasters Intensity Analysis and Classification using Artificial Intelligence
7. Fertilizers Recommendation System For Disease Prediction
8. A Novel Method for Handwritten Digit Recognition System
9. Emerging Methods for Early Detection of Forest Fires
10. Gesture-based Tool for Sterile Browsing of Radiology Images
11. Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy
12. Intelligent Vehicle Damage Assessment & Cost Estimator for Insurance Companies
13. Virtual Eye - Life Guard for Swimming Pools to Detect Active Drowning
14. AI-based localization and classification of skin disease with erythema
15. AI based discourse for Banking Industry

Use-Case 1: Real-Time Communication System Powered by AI for Specially Abled

- A World Health Organization report says around 63 million people in India suffer from either complete or partial deafness, and of these, at least 50 lakh are children.
- Communication between deaf-mute and a normal person has always been a challenging task.
- It is very difficult for mute people to convey their message to normal people in emergency times as well as in normal times.

Social Impact:

- The main purpose of this application is to make deaf-mute people feel independent and more confident.

Use-Case 1: Real-Time Communication System Powered by AI for Specially Abled

Business Model/Impact:

- Can generate revenue through direct customers and collaborate with health care sector and generate revenue from their customers.

Existing Solutions:

- https://play.google.com/store/apps/details?id=in.eightfolds.deafenabled&hl=en_IN&gl=US
- https://abilitynet.org.uk/news-blogs/9-useful-apps-people-who-are-ddeaf-or-have-hearing-loss

Recommended Technology Stack:

- Data Science, Deep Learning, Computer Vision, Artificial Intelligence, IBM Watson, etc.

Reference:

- https://www.researchgate.net/

Use-Case 2: Crude Oil Price Prediction

- About 30% of India's total energy consumption is met by oil.
- Prediction of future crude oil price is considered a significant challenge due to the extremely complex, and dynamic nature of the market and stakeholders perception.
- The market price for commodity such as crude oil is influenced by many factors including news, supply-and-demand gap, labour costs, amount of remaining resources, as well as stakeholders' perception.

Business Model/Impact:

- We can focus on exporters in exporting countries, generate revenue by selling our application.

Use-Case 2: Crude Oil Price Prediction

Existing Solution:

- https://play.google.com/store/apps/details?id=com.despdev.metalcharts&hl=en_IN&gl=US

Recommended Technology Stack:

- Data Science, Deep Learning, Artificial Intelligence, IBM Watson, etc.

Reference:

- https://www.researchgate.net/publication/286934293_BETA_CLUSTERING_OF_IMPACT_OF_CRUDE-OIL_PRICES_ON_THE_INDIAN_ECONOMY

Use-Case 3: AI-powered Nutrition Analyzer for Fitness Enthusiasts

- In India, because of unhealthy food, most young people are dying due to obesity, type 2 diabetes, heart disease, high blood pressure, and stroke.
- Nowadays new dietary assessment and nutrition analysis tools are available.
- Nutritional analysis is the process of determining the nutritional content of food. This helps the fitness enthusiast to track and monitor their intake nutrition and calorie intake.

Social Impact:

- People can do weight managements, strengthen their bones and muscles, manage chronic health conditions & disabilities.

Use-Case 3: AI-powered Nutrition Analyzer for Fitness Enthusiasts

Business Model/Impact:

- Social media is the best way to spread the word about our application. And with the influencers we can attract the normal people.
- Clustering and targeting the fitness people with the help of local gyms.

Existing Solutions:

- https://www.healthifyme.com/in/
- https://analyticsindiamag.com/

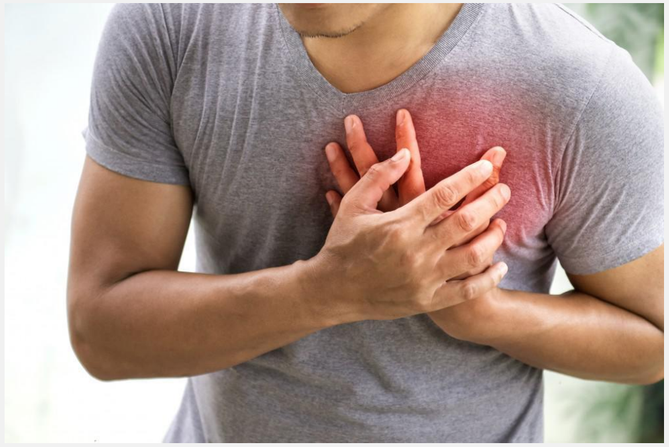
Recommended Technology Stack:

- Data Science, Deep Learning, Artificial Intelligence, IBM Watson, etc.

Reference:

- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4042570/

Use-Case 4: Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation

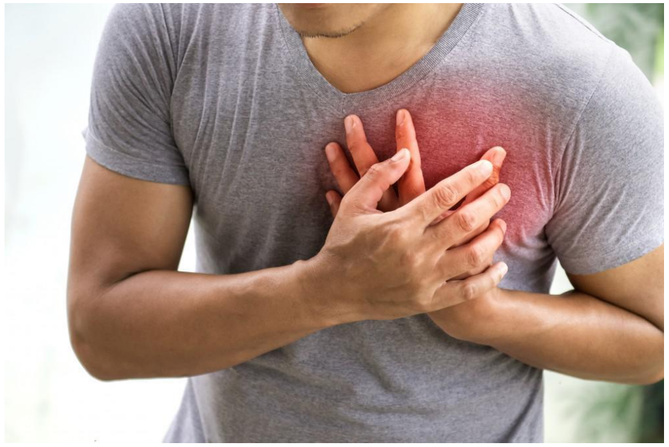


- According to the World Health Organization (WHO), cardiovascular diseases (CVDs) are the number one cause of death today. .
- The annual number of deaths from CVD in India is projected to rise from 2.26 million (1990) to 4.77 million (2020).
- Arrhythmia is a representative type of CVD that refers to any irregular change from the normal heart rhythms.

Social Impact:

- The main purpose of this application is to make people awareness on their general health.

Use-Case 4: Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation



Business Model/Impact:

- Can collaborate with diagnosis centres and hospitals.
- Can collaborate with government for health awareness camps.

Existing Solution:

- https://apps.apple.com/us/app/ecg/id1459546745

Recommended Technology Stack:

- Data Science, Deep Learning, Artificial Intelligence, IBM Watson, etc.

Reference:

- https://www.researchgate.net/publication/341623436_Classification_of_Arrhythmia_by_Using_Deep_Learning_with_2-D_ECG_Spectral_Image_Representation

Use-Case 5: Digital Naturalist - AI Enabled tool for Biodiversity Researchers

- A naturalist is someone who studies the patterns of nature, identifies and examines different kind of flora and fauna in the nature.
- When venturing into the woods, field naturalists usually rely on common approaches like always carrying a guidebook around everywhere or seeking help from experienced Ornithologist .

Social Impact :

- Being able to identify the flora and fauna around us often leads to an interest in protecting wild spaces

Business model/Impact :

- Can make money through subscription based.
- Partnership with many laboratories and scientists around the world.

Use-Case 5: Digital Naturalist - AI Enabled tool for Biodiversity Researchers

Existing Solutions :

- https://lens.google/
- https://apps.apple.com/us/app/plant-identification/id1488376022

Recommended Technology Stack :

- Artificial Intelligence, Computer Vision, Ibm Watson etc..

References :

- https://nora.nerc.ac.uk/id/eprint/528851/1/N528851JA.pdf
- https://news.microsoft.com/features/like-taking-a-whole-scientific-team-with-you-on-a-walk-inaturalist-helps-spawn-a-generation-of-citizen-scientists/

Use-Case 6: Natural Disasters Intensity Analysis and Classification using Artificial Intelligence

- Natural Disaster one of most inevitable disasters, it can be caused by naturally occurring events such as earthquakes, cyclones, floods, and wildfires
- A natural disaster can cause loss of life or damage property like buildings will collapse due to seismological effects, and typically leaves some economic damage in its wake. diseases/virus spread and sometimes natural disasters can devastate nations.

Social Impact :

- Can save lives of people, can minimize the loss of infrastructure,finance etc.

Business Model/Impact:

- By helping the government and getting fund from it.
- By giving the information to companies.

Use-Case 6: Natural Disasters Intensity Analysis and Classification using Artificial Intelligence

Existing Solution :

- https://www.gdacs.org/default.aspx

Recommended Technology Stack :

- Artificial Intelligence, Computer Vision, Ibm Watson etc..

References :

- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8069408
- https://deepblue.lib.umich.edu/bitstream/handle/2027.42/155885/risa13476.pdf?sequence=2

Use-Case 7: Fertilizers Recommendation System For Disease Prediction

- Agriculture is the most important sector in today’s life. Most of the plants are affected by a wide variety of bacterial and fungal diseases.
- In agricultural aspects, if the plant is affected by leaf disease then it reduces the growth and productiveness.
- Generally, the plant diseases are caused by the abnormal physiological functionalities of plants.

Social Impact :

- Helps farmers to get good yield out of the crop.
- People will get good quality products.

Business Model/Impact:

- Can give this to farmers in subscription bases.
- Recommending fertilizers and places that has and can get commission out of it.

Use-Case 7: Fertilizers Recommendation System For Disease Prediction

Existing Solution :

- https://plantix.net/en/

Recommended Technology Stack :

- Artificial Intelligence, Digital Image Processing, Computer Vision, Ibm Watson, etc..

References :

- http://www.ijstr.org/final-print/nov2019/Fertilizers-Recommendation-System-For-Disease-Prediction-In-Tree-Leave.pdf
- https://extension.sdstate.edu/sites/default/files/2019-03/P-00039_0.pdf

Use-Case 8 : A Novel Method for Handwritten Digit Recognition System

- Digit recognition plays an important role in the modern world.
- It can solve more complex problems and makes humans job easier. This type of system can be widely used in the world to recognize zip code or postal code for mail sorting
- In Banking Sector too where more handwritten numbers are involved like account number, figure of cash and checks.

Social Impact:

- Postal department and courier services can easily find the digits written.
- Old people who will have eye sight issues with handwritten digits.

Business Model/Impact:

- Baking sector and Postal sector by providing the services.

Use-Case 8 : A Novel Method for Handwritten Digit Recognition System

Existing Solutions :

- https://web.dev/handwriting-recognition/
- https://readcoop.eu/transkribus/

Recommended Technology Stack :

- Artificial Intelligence, Computer Vision, Ibm Watson, etc..

References :

- https://www.researchgate.net/publication/354755659_A_Novel_Handwritten_Digit_Classification_System_Based_on_Convolutional_Neural_Network_Approach
- http://troindia.in/journal/ijcesr/vol6iss6part2/32-36.pdf

Use-Case 9 : Emerging Methods for Early Detection of Forest Fires

- Forest fires are a major environmental issue, creating economic and ecological damage while endangering human lives.
- There are typically about 100,000 wildfires in the United States every year. Over 9 million acres of land have been destroyed due to treacherous wildfires.
- It is difficult to predict and detect Forest Fire in a sparsely populated forest area.

Social Impact:

- Tribal people who live in forest and forest department.
- Saving the most essential Forest cover.

Business Impact:

- Supply chain, power & supply, Fires stations and government by providing services.

Use-Case 9 : Emerging Methods for Early Detection of Forest Fires

Existing Solutions:

- https://www.bosch.com/stories/early-forest-fire-detection-sensors
- http://catalogue.servirglobal.net/Product?product_id=11

Recommended Technology Stack:

- Artificial intelligence, Computer vision, IBM Watson, etc.

Reference:

- https://ieeexplore.ieee.org/document/8534245

Use-Case 10 : Gesture-based Tool for Sterile Browsing of Radiology Images

- Health care is one of the most important and major sector in India , which contributes to economy of India.
- The use of doctor-computer interaction devices in the operation room (OR) requires new modalities that support medical imaging manipulation while allowing doctors' hands to remain sterile, supporting their focus of attention, and providing fast response times.

Social Impact:

- Contributing the corporate social responsibility by providing better solutions to the healthcare and to patients

Business Model/Impact:

- Can collaborate with diagnosis centers and hospitals.
- Can collaborate with government for health awareness camps.

Use-Case 10 : Gesture-based Tool for Sterile Browsing of Radiology Images

Existing Solution:

- https://ris.com.au/

Recommended Technology Stack:

- Data Science, Deep Learning, Artificial Intelligence, IBM Watson, etc.

References:

- https://www.itnonline.com/content/new-needle-guidance-system-uses-real-time-tip-tracking
- https://builtin.com/healthcare-technology

Use-Case 11 : Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy

- Health care is one of the most important and major sector in India , which contributes to economy of India.
- Diabetic retinopathy is one of the common complications of diabetes.
- Retinopathy is a common cause of visual loss in the world and it is a potentially blinding complication of diabetes that damages the eye's retina

Social Impact:

- Helps in preventing the loss of visibility to the needed through CSR activities or through healthcare camps

Business Model/Impact:

- Can collaborate with diagnosis centers and hospitals.
- Can collaborate with government for health awareness camps.

Use-Case 11 : Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy

Existing Solution:

- https://www.digitaldiagnostics.com

Recommended Technology Stack:

- Data Science, Deep Learning, Artificial Intelligence, IBM Watson, etc.

References:

- https://www.mayoclinic.org/diseases-conditions/diabetic-retinopathy/symptoms-causes/syc-20371611#:~:text=Diabetic%20retinopathy%20(die%2Duh%2D,or%20only%20mild%20vision%20problems.
- https://www.hindawi.com/journals/joph/2018/1694187/

Use-Case 12 : Intelligent Vehicle Damage Assessment & Cost Estimator for Insurance Companies

- Automobile sector is one of the most important and major sector in India , which contributes to economy of India.
- One of the major problem faced by the customers or the insurance companies are not having idea about the cost of repair for the damage
- Insurance companies are failing to provide right amount for the car damage and the customers not able to claim for the damage.
- Developing a solution, which can able to identify the right cost for the damage would be beneficial for many

Business Model/Impact:

- Can collaborate with insurance companies.
- Can collaborate with car companies
- Can post the advertisements on to the website.

Use-Case 12 : Intelligent Vehicle Damage Assessment & Cost Estimator for Insurance Companies

Existing Solution:

- https://droom.in/repair-estimate

Recommended Technology Stack:

- Data Science, Deep Learning, Artificial Intelligence, IBM Watson, etc.

References:

- https://phillongbodyshop.com/collision-repair-cost-calculator.html
- https://www.researchgate.net/publication/310464310_Methodology_of_repair_cost_estimation_in_vehicles_based_on_the_deformation_measurements_in_real_world_accidents

Use-Case 13: Virtual Eye - Lifeguard for Swimming Pools to Detect Active Drowning

- Drowning is the 3rd leading cause of unintentional injury death worldwide, Each year many people including children are drowned or very close to drowning in the deeps of the swimming pools.
- One important environment that the need for monitoring systems is crucially sensed is the swimming pool.
- Real-time detection of a drowning person in swimming pools is a challenging task that requires an accurate system.
- In this application with using some advanced technologies, we can identify if anyone is drowning in a live video feed and then send an alert immediately.

Business Model/Impact:

- Can generate revenue from direct customers, like lifeguards, and collaborate with maritime sector and other Swimming pool authorities.

Use-Case 13: Virtual Eye - Lifeguard for Swimming Pools to Detect Active Drowning

Existing Solutions:

- https://www.angeleye.tech/us/us-lifeguard/
- SwimEye - a drowning detection system for swimming pools

Recommended Technology Stack:

- Data Science, Computer Vision, Artificial Intelligence, IBM Watson, etc.

Reference:

- How do drowning detection systems identify water incidents? (leisurelitblog.co.uk)

Use-Case 14 : AI-based localization and classification of skin disease with erythema

- As per the World Health Organization statistics more than 125 million people are suffering from skin diseases.
- Erythema is a skin disorder that's considered to be an allergic reaction to medicine or an infection.If skin diseases are not treated at an earlier stage, then it may leads to complications.
- The main challenge is, to identify this particular skin disease, as the test results are fluctuating.
- Detection of skin disease and its severity at the earliest will helps the people to take necessary actions.

Business Model/Impact:

- Health Care Sector(Hospitals).
- Can generate revenue through direct customers.
- Can collaborate with health care sector and generate revenue from their customers

Use-Case 14 : AI-based localization and classification of skin disease with erythema

Existing Solutions:

- https://askaysa.com/about/
- https://play.google.com/store/apps/details?id=com.pkg.mrd&gl=US

Recommended Technology Stack:

- Data Science, Computer Vision, Artificial Intelligence, IBM Watson, etc.

References:

- https://www.britannica.com/science/erythema
- https://www.sciencedirect.com/science/article/pii/S1877050919321295

Use-Case 15 : AI based discourse for Banking Industry

- Banking is one the crucial sector, it deals with financial transactions which can be availed by everyone, banks are not able to resolve the queries of customers related to the products or services in satisfactory way in turn hinders the customer satisfaction
- Currently, most banks offer a wide variety of products and services – credit cards, savings accounts, debit cards, financial planning, personal loans, mortgages, etc. Yet many customers are not always aware of all the products offered by the financial company they‘re doing business with.
- Addressing and resolving this issue will highly beneficial for the banks.

Social Impact:

- Customers of the bank – Depositors, borrowers, lenders etc

Use-Case 15 : AI based discourse for Banking Industry

Business Model/Impact:

- Banks will enable much and reliable services which will gain customer loyalty.

Existing Solution:

- https://www.kotak.com/en/home.html

Recommended Technology Stack:

- Artificial Intelligence, Computer Vision, IBM Watson, etc.

Reference:

- https://www.researchgate.net/publication/360782923_A_STUDY_OF_APPLICATIONS_OF_ARTIFICIAL_INTELLIGENCE_IN_BANKING_AND_FINANCE_SECTOR

Thank You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