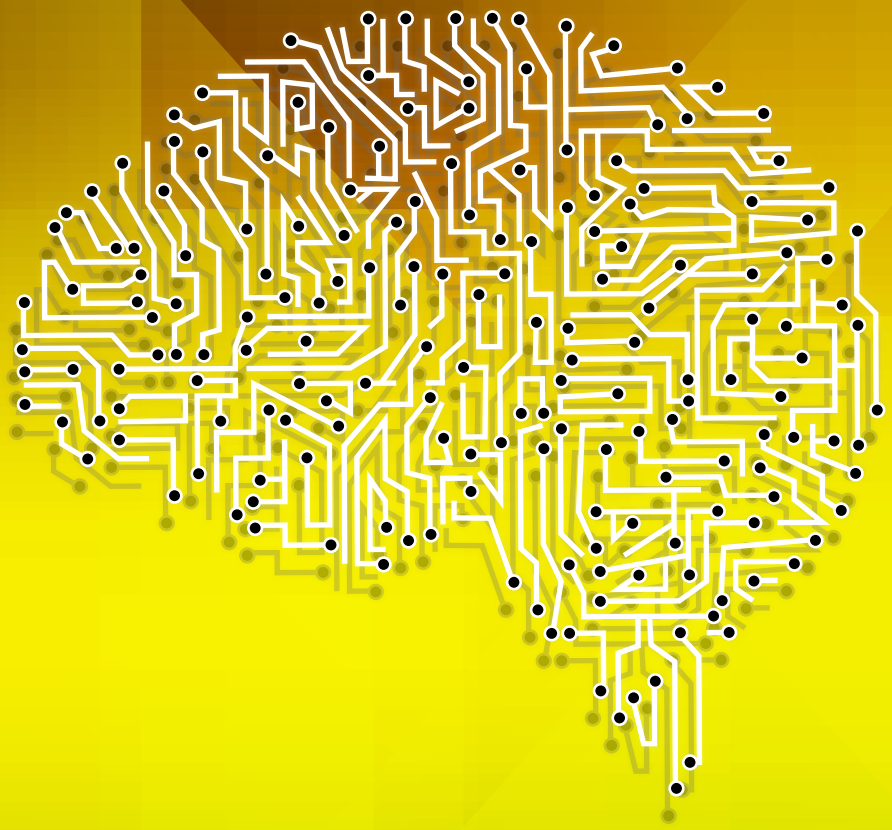
happiest minds
The Mindful IT Company
Born Digital . Born Agile

Artificial Intelligence: An Early Enhancement In Different Verticals



Contents

Abstract

Artificial Intelligence is being used for optimization and Holonic Control by enabling human like properties with the Neuro-Fuzzy synergic system. To accelerate the business models and upsurge the industry verticals with Genetic algorithms, this whitepaper gives the citation screen of different industry verticals where artificial intelligence can be applied as an interdisciplinary concept in building up a Real-Time intelligent application in the fields of control theory and Industrial informatics for Analysis, Diagnosis and Monitoring.

Introduction

The buzz word Artificial intelligence (AI) has been existing through years, however where it can be advanced is a matter of discussion. With the developing technologies, currently there is a huge demand of comprehensive human learning in computational aspects - Capable of changing its own behavioral belief. Having the ability to decide, learn and inculcate itself based on the previous events and act upon it very diligently.

AI is a set of algorithms which contains self-Learning capability and assist processes. These algorithms are generated through thorough study of Neuromorphic systems of human - scientifically and mathematically developing the systems capable of producing the results in an interpreted way using the fuzzy logic. Fuzzy logic is a systematic rule-based approach which uses the different levels of understanding helping in resembling the decision making capabilities similar to that of the humans.

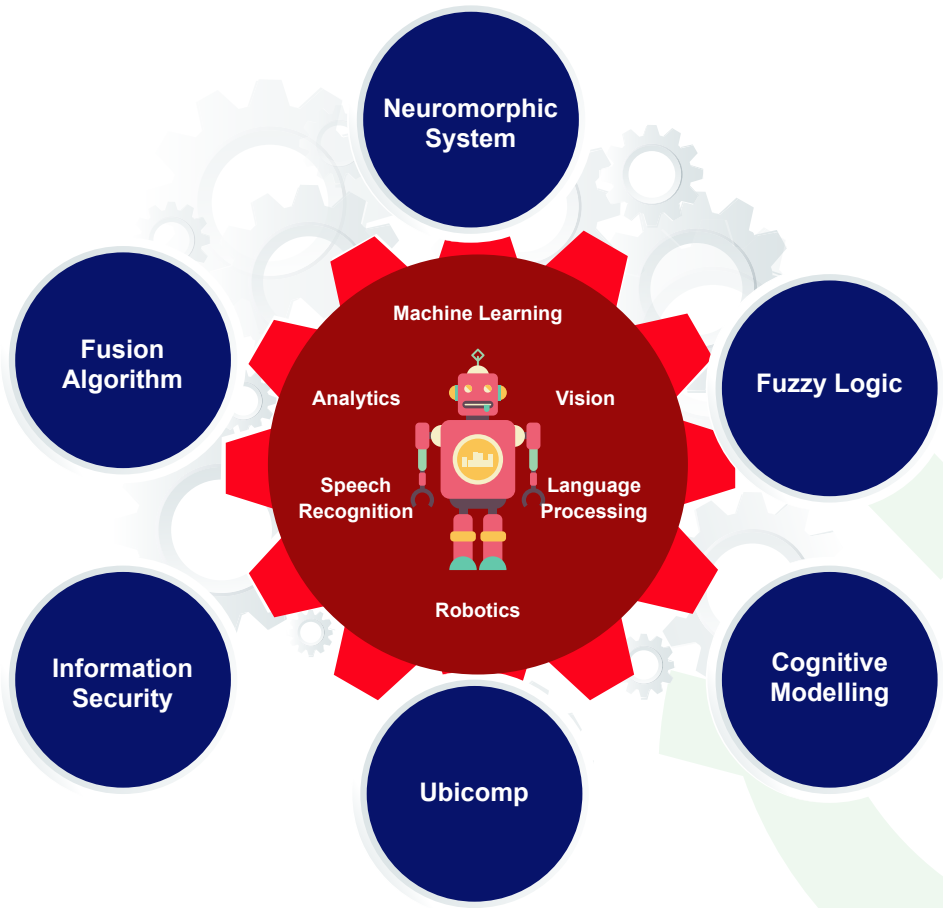


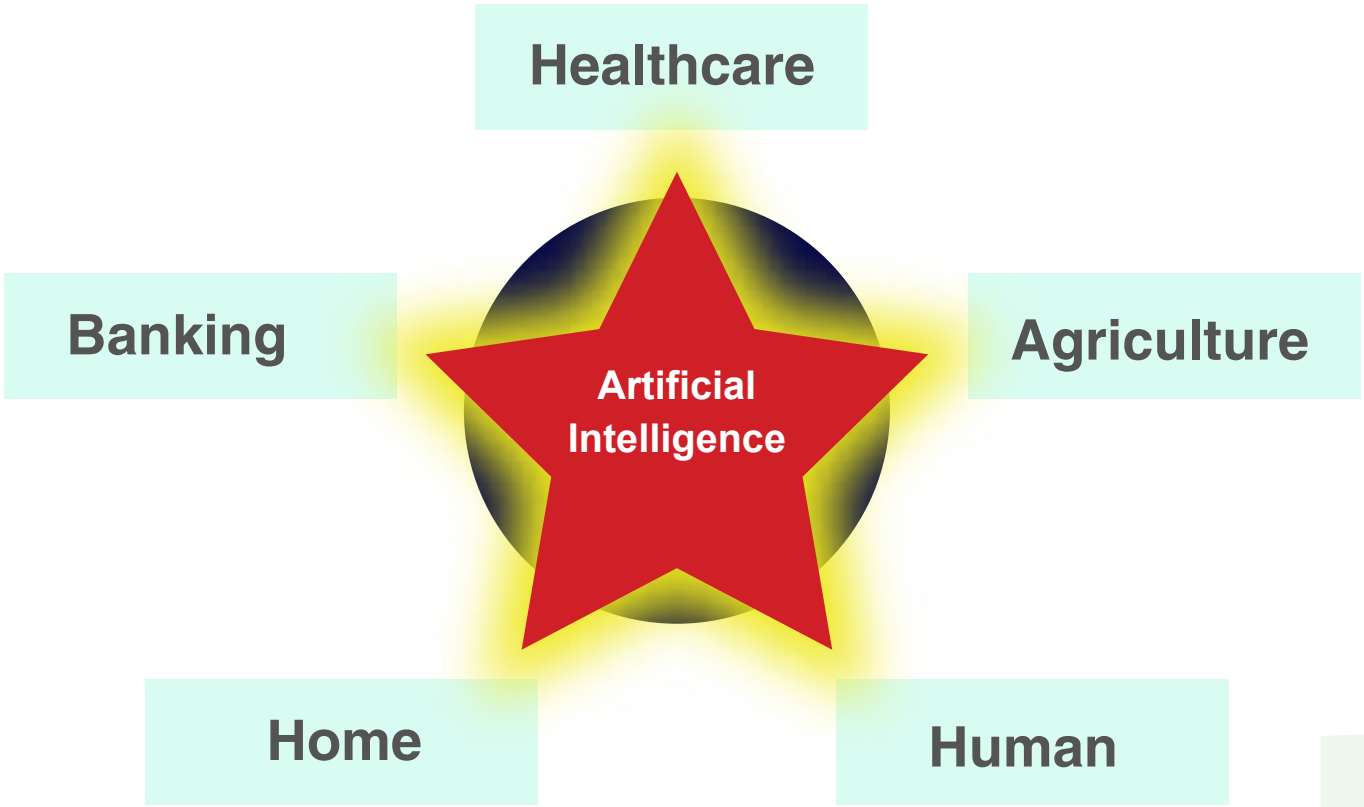
Fig 1.1. Various concepts involved in Artificial Intelligence

In current scenario, the things getting connected together in ecosystem produces a massive volume of information, the potential lies in streaming the valid data to analyze process and act consciously realizing the machine aspects through Analytics and proactive intervention.

There are several ways to analyze and indulge the performance in decision making ability to understand the scenario and give the deeper understanding through visual sensing cognitive systems.

Artificial Intelligence meeting different Verticals:

Innovations trove the known patterns to understand the concept of human realistic behaviors on future infrastructure. It is not just about automating, it's the system combining with the Artificial Intelligence that makes life easier and adaptable to any critical situations. Here are few industry verticals which perceive, decide, derive and act intelligently.

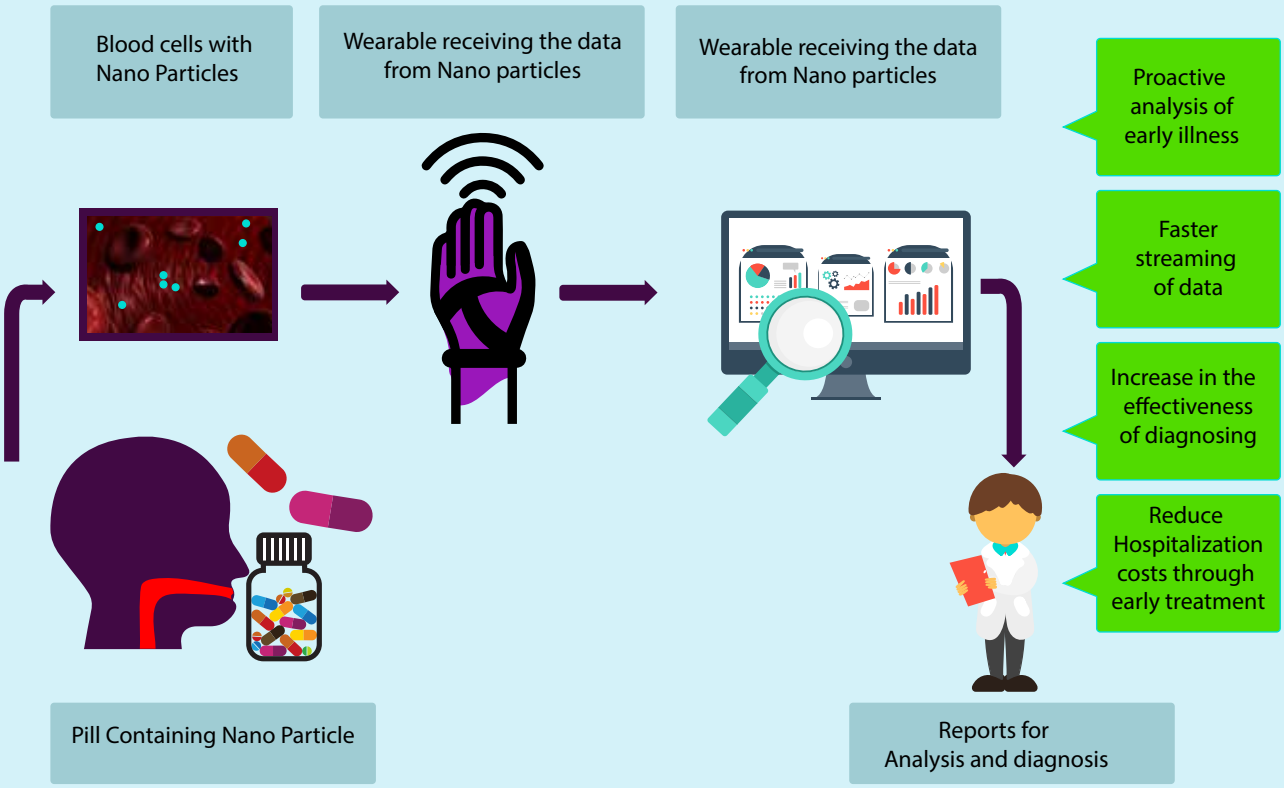


Healthcare

Recent studies can make use of Nano engineering in medical examining field which can detect the illness of a patient. A pill or injections consisting of nanoparticles when swallowed or injected gets released into the bloodstreams and can detect the early stages of illness.

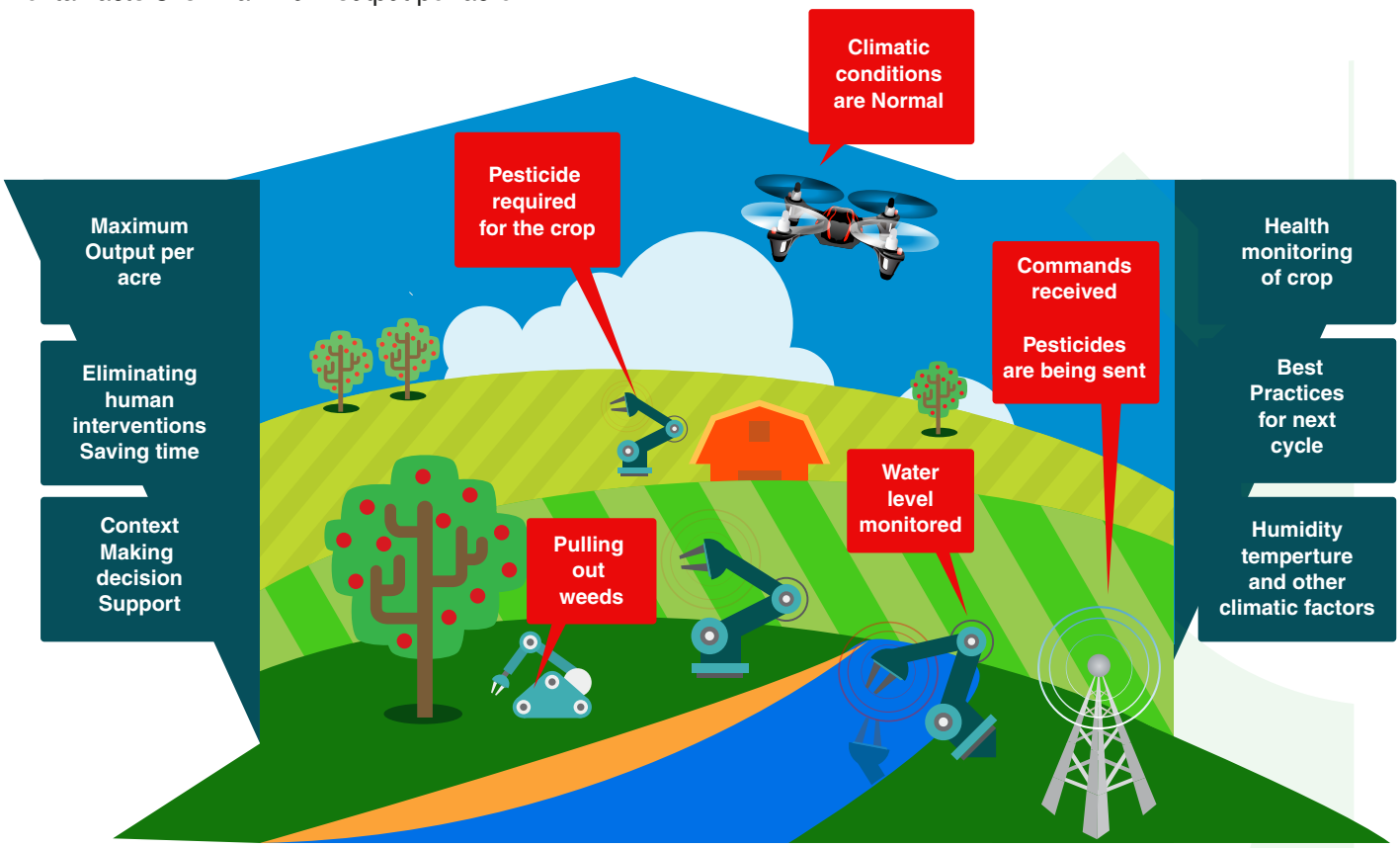
These nanoparticles can interact with the wearable devices to proactively notice the changes and identify the molecular level interaction with the foreign particles intruding the normal flow in human body. The wearable device will retrieve this data and give the readings for diagnosis using prescriptive analytics. In biochemistry, the nanoparticles move randomly when they are unattached this gives the differentiating capability with that of the cancer cells.

Machine learning deals with cognitive modelling and the computational algorithms, the machine capabilities helps in building the learning process and diagnose the diseases effectively.



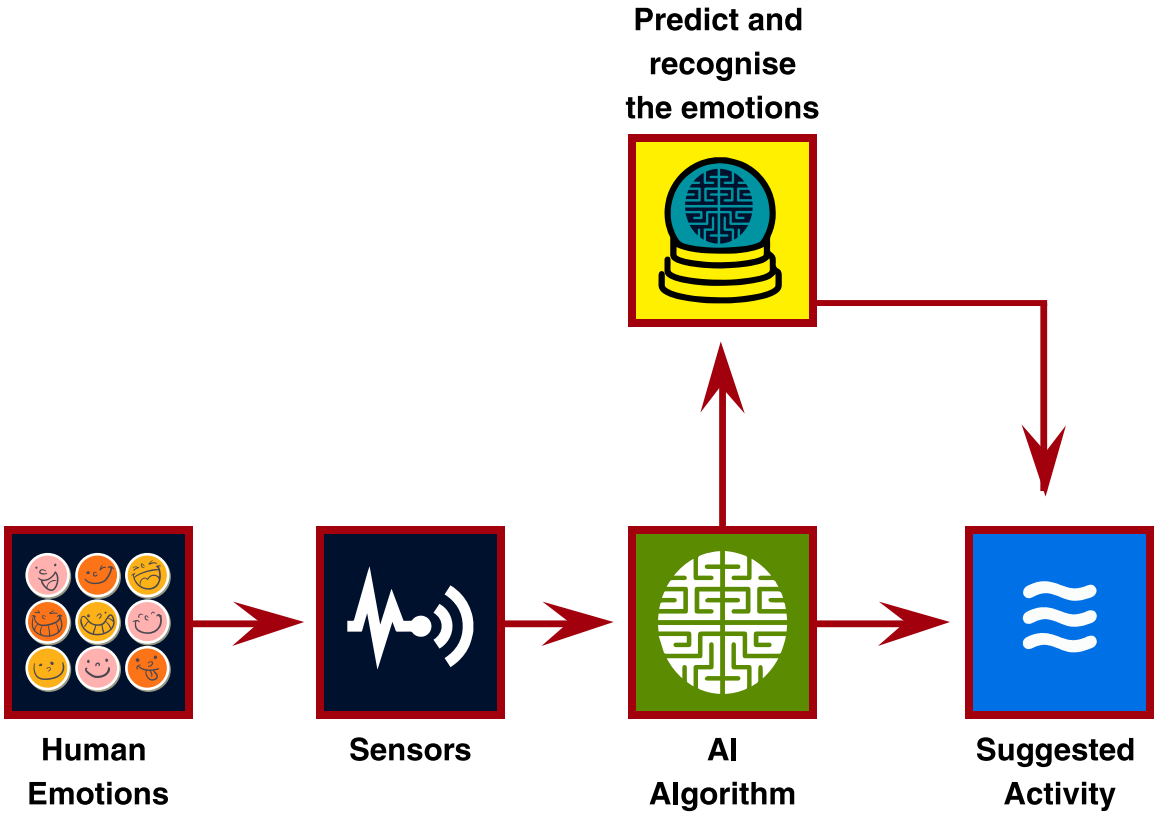
Agriculture

There is a huge need of modern agricultural practices which include the self-evident learning capability on agricultural output. The human centric Ubicomp (Ubiquitous Computing) is evident to provide the learning mechanism using the network of sensors in monitoring the health of crops on various factors. The factors on which the environmental conditions include the type of field and soil texture suitable for particular plant growth and context-making decision support in any sudden climatic changes or variations, and to determine the amount of water required for crop using the rainfall and humidity factors into consideration. The algorithms also helps in determining the best suitable plant for next farming cycle considering the environmental factors for maximum output per acre.

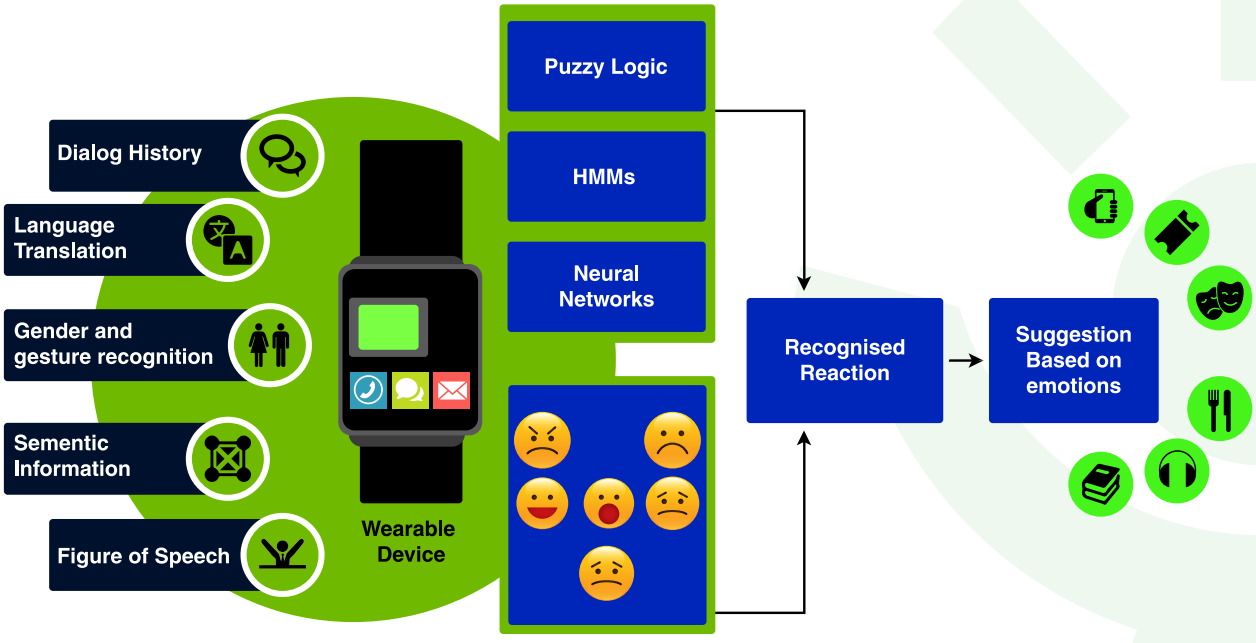


Human: Wearables

The wearables gives the alerts and reminders on health monitoring for fitness or treatment status but wouldn't be able to track the actions for these alerts and record them. Artificial Intelligence with the help of neural networks can track the actions based on human activities and record the responses. The recorded data will be forwarded to the physician about the critical changes due to improper dosage. The wearable might even suggest a movie when you are bored using your emotion sensing capabili-ty and suggest a friend availability based on your frequent chat history and by giving reviews of the movie and tickets available at the nearest convenient movie theatre.



The human emotions are difficult to capture, for the recognition-an algorithm based on the HMMs (Hidden Markov Model) along with neural networks combined can interpret the structure of emotions and the figure of speech. The emotions are based on eight sub networks with seven emotions (Anger, happiness, sad, disgust, fear, tease and surprise) and neural network.



Home: Chore automation

According to Gartner reports “Household chores today take up the equivalent of an estimated $11 trillion a year in consumer time, a figure expected to reach about $23 trillion in 2025.” The devices with

Artificial Intelligence in chore automation in a unified framework will learn the activities on daily basis and gradually learn the actions to be performed based on physical home environment events.

Based on the cluster of events and applications the devices could be able to address and predict on the homeowner needs and alerts him for the same. The chores including the food preparation, garden care, mopping and laundry will be smartly monitored using the novel cooperative fusion algorithm, this algorithm is based on the high resolution image sensing on NSTC (No subsampled contourlet) domain. Based on the wavelet theory and RGB bands, it enhancing the visual capability and decision making based on the same.

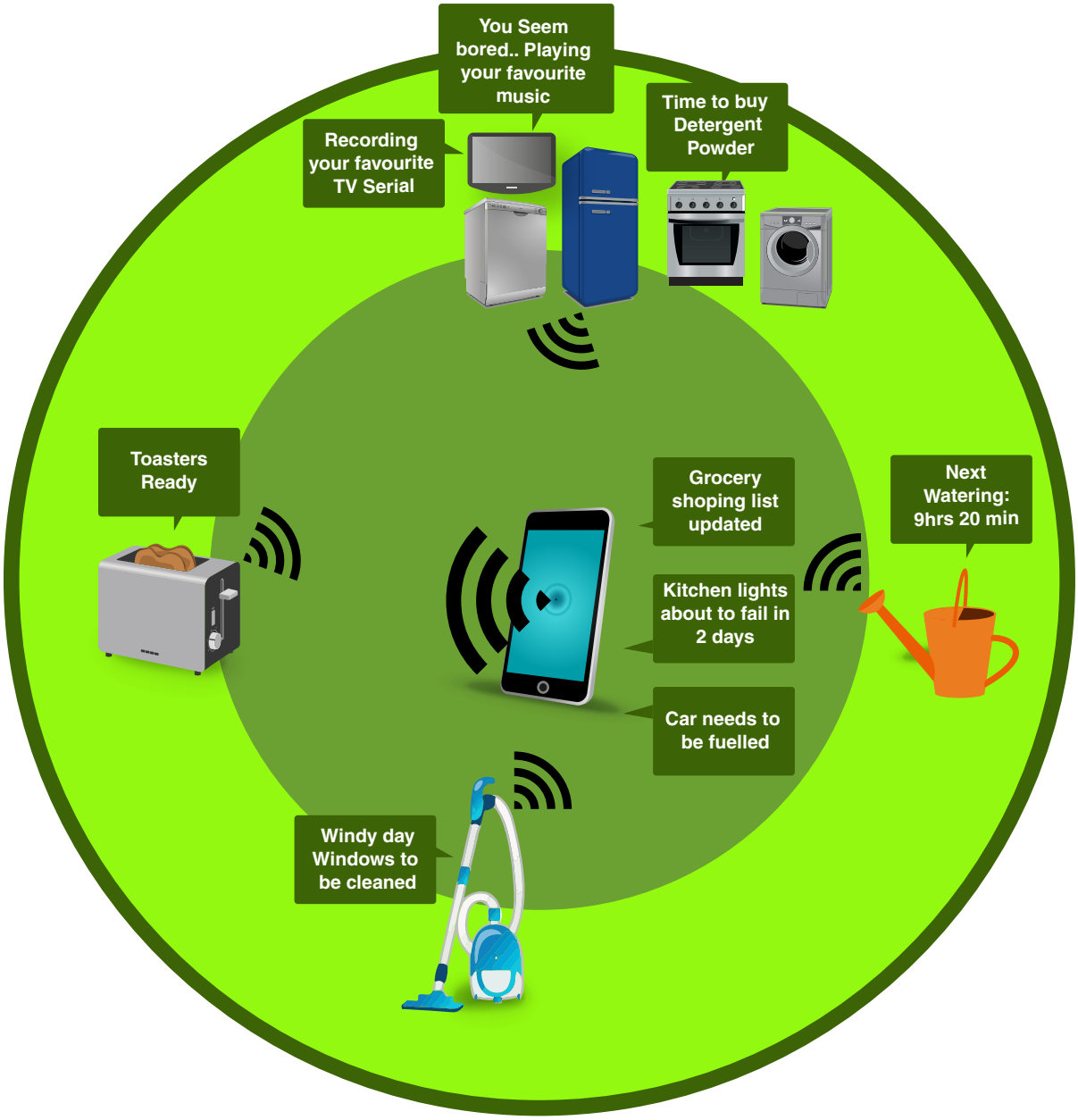


Fig. 5 Intelligence at home

Banking

Early developments are being carried out on transforming the physically touchable devices to the voice recognition system using AI for any bank account transactions. The artificial intelligence can now be integrated as a private financial adviser taking into the consideration of safe and secure platform and maintain personal portfolio for stock and bond price trend monitoring events and forecasting.

Descriptive analytics can be applied in sales cycle or predicting the customer's past financial performances.

Using many competing hypothesis the artificial intelligence gives the computed analogy to analyze the past actions and implications for data driven managements for better banking decisions.

Conclusion

Artificial intelligence with the current technology trend improve the accuracy and better decision making correlations by effective analysis for critical conventional methods. It is likely to handle uncertainty and derive to the optimized solutions. The insights of several verticals discussed above showcases the ability to learn itself by perceiving its environment factors, which makes the world smarter.

About the Author

Pooja R Kakadekar is a team member of IoT practice in Happiest Minds Technologies. She has previously undertaken project in Digital System Group at ISRO Satellite Centre. She bear several certifications from AMCAT - Software Development Trainee, Data Processing Specialist, Business Analyst, Sales Professional-Electronics and Semiconductor Engineering. She holds Bachelor's degree in Electronics and Communication Engineering.

Happiest Minds

Happiest Minds, the Mindful IT Company, applies agile methodologies to enable digital transformation for enterprises and technology providers by delivering seamless customer experience, business efficiency and actionable insights. We leverage a spectrum of disruptive technologies such as: Big Data Analytics, AI & Cognitive Computing, Internet of Things, Cloud, Security, SDN-NFV, RPA, Blockchain, etc. Positioned as "Born Digital . Born Agile", our capabilities spans across product engineering, digital business solutions, infrastructure management and security services. We deliver these services across industry sectors such as retail, consumer packaged goods, edutech, e-commerce, banking, insurance, hi-tech, engineering R&D, manufacturing, automotive and travel/transportation/hospitality.

Headquartered in Bangalore, India; Happiest Minds has operations in USA, UK, The Netherlands, Australia and Middle East.

Business Contact: business@happiestminds.com **Media Contact:** media@happiestminds.com

E-mail: business@happiestminds.com
Visit us: www.happiestminds.com

Follow us on