D-KOSMOS

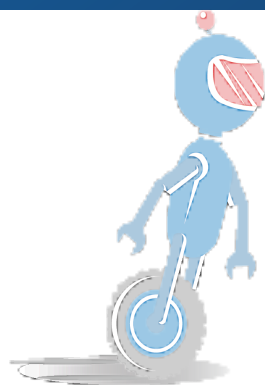## FACULTY OF COMPUTER APPLICATIONS & INFORMATION TECHNOLOGY

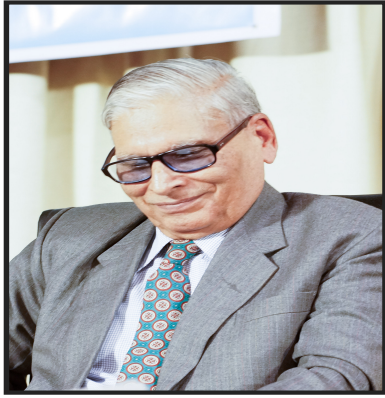## ROBOTIC PROCESS AUTOMATION

Message From Dean, FCAIT

The use of Artificial Intelligence is increasing in the new applications day by day making the applications more user-friendly capable of making right assumptions in decision making. On the other hand, use of robots with AI is increasing in manufacturing and other hazardous tasks. Similarly software robots with AI now known as Bots (or Chatbots) are coming in plenty to automate many routine communication tasks in various fields including business. It is estimated that by 2021 there will be as many personal assistants (bots) as the number of people on the planet.

This issue is devoted to Robotic Process Automation (RPA). You will find the contributions by UG students quite interesting.

---R. P. Soni

From Editorial Desk

"Robotic Process Automation will help humans to become more human."

With this thought, we would like to present our next edition of D-Kosmos which will show how Robotics Process Automation allows organizations to automate tasks like human beings do them across applications and systems. With RPA solutions, organizations can boost productivity, improve accuracy.

In this issue of D-Kosmos, we would like to brief you on RPA's history, its implementation and how it is beneficial in our day-to-day lives and in our workplaces. We would also like to make a special mention to Youthfest 2018 – Wanderlust, where students gathered to participate in theatre events, fashion shows, writing events, among many other activities. Some students also participated in educational visits and you will also get a glimpse of various activities taking place at NSS and CSI. We hope you like this edition of D-Kosmos. We would also request our readers to send in their suggestions and feedback, if any, on dkosmos@glsica.org.

Wish you a happy reading!!!!

What's Inside?

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ROBOTIC PROCESS AUTOMATION

Introduction

Can your future job already be in danger? Is it really true that robots might replace your job? Would you rather deal with a robot or a human in a store or government department? With the advent of a myriad of technologies, humans are constantly moving towards shaping a complete digital globe.Robotic Process Automation (RPA),sometimes called a software robot, is one of the most promising modern technologies having artificial intelligence (AI) and machine learning capabilities to handle high-volume, repeatable tasks that previously required humans to perform. These tasks can include queries, calculations and maintenance of records and transactions generally in business environments. The three terms 'robot' (Entities which mimic human actions), 'process' (Sequence of steps which lead to a meaningful activity) and 'automation' (Any process which is done by a robot without human intervention) themselves are en1ough to define the potential this technology holds.

As industrial robots transformed the factory floor,RPA bots transform back offices. RPA Bots replicate employee actions like opening files,inputting data, copy pasting fields in an automated way. To set up an RPA bot, it isn't required to know programming. There are 4 ways to setup RPA bots.

There are 4 ways to setup RPA bots

RPA Implementation Methodology

Planning → Development → Testing → Support & Maintenance

Planning

In this phase, you need to Identify processes which you want to automate. Following checklist will help you identify the correct process

- Is the process manual & repetitive?
- Is the process Rule-based?
- Is the input data is in electronic format and is readable?
- Can existing System be used as it is with no change?

Next, steps in planning phase are

- Setup project team, finalize implementation imelines and approach.
- Agree on solution design for performing RPA processes.
- Identify logging mechanism that should be implemented to find issues with running bots.
- Clear roadmap should be defined to scale up RPA implementation

Development

In this phase, you start developing the automation workflows as per agreed plan. Being wizard driven, the implementation is quick and easy.

Testing

In this phase, you run Testing cycles for in-scope automation to identify and correct defects.

Support & Maintenance

Provide continuous support after going live and helps in immediate defect resolution. Follow general maintenance guidlines with roles and responsibilities with business and IT support teams.

01 Programming

As expected, the most powerful interfaces for programming bots is a programming language. However, using a programming language requires skill and patience so this method is relevant for technically inclined personnel. Programming instructions essentially tell the bot which programs to use and how to interact with those programs.

02 Graphical User Interfaces

Many vendors offering solutions to program RPA bots with drag & drop interfaces.

03 Recorder

Just like macros in excel, bots can complete recorded actions. Recorded actions can involve numerous enterprise software such as taking data from Salesforce, merging it with a report from mailchimp in excel to identify which customers to target during the company's routine customer activation SMS campaign.

04 Self-learning bots

These bots watch recorded employee activity to learn automatable tasks. They are the easiest to deploy bots.Once bots are setup, an orchestration module helps start/stop bots and analyse their activity

History of RPA

There is a common debate among the people of the automation community that whether Robotic Process Automations a new technology or just an extension and advancement of the pre-existing technologies.

1 Screen Scraping Software

It was developed even before the invention of the internet. Now a day it is being used to extract data from the internet on the presentation layer. This software has a limitation because it's compatibility with one the other applications varies. Its dependence on HTML code of the websites makes it more difficult to handle. Hence users required more versatile and easily adaptable technologies.

2. Workflow Automation and Management Tools

Workflow Automation Software can help in process where there is a need of capturing curtain fields of data and then transferring them into the company's database. For example:- in order processing, where data like customer name, address, contact detail, can be captured by this software. This eliminates the need for manual data entry resulting in increased speed, efficiency and accuracy.

3. Artificial Intelligence

Artificial I machines have the capability of completing tasks that previously required human brains for decision making power like strategic and financial planning or fraud detection, etc.Although this technology is expensive, it is highly beneficial due to its high accuracy and replacement of manpower from the tedious and time-consuming tasks to more production tasks.

4. Robotic Process Automation

It has the capability of improving and combining these technologies and making optimum use of them. This makes RPA so popular in recent times.

Examples of RPA

Robotic process automation represents the digital continuation of an industrial revolution which began in the 1970s: the steady advancement of automation, allowing engineers to accomplish tasks which once required direct human guidance. In the case of RPA, the automation refers to digital processes, such as the sharing of information between systems and the processing of financial data. This is a cutting-edge field, in which innovative new developments are appearing on a regular basis, but many of its most important advancements have long since been taken for granted. Online shopping is one example of an everyday activity, all over the world, which would not be possible without robotic process automation streamlining the financial transactions and the secure connections between remotely located networks and databases.

Web Analytics

The seminar was held on 8th Sepetember, 2013 by Dr. Susmita Chanda, dieticiean from KD Hospital. The aim of this seminar was to provide aware-ness about the balanced diet and healthy food habits. The doctor explained the importance of healthy body, information about unhealthy food and how to fit naturally.

Personal Digital Assistants

Software like SIRI, or the advanced functionality of the Amazon Fire, depends upon advanced forms of digital automation in several ways. The ability of modern computer software to recognize and process the human voice is far deeper and more accurate than anything we might remember from years past; this is a crucial element of the modern AI interface. Software which learns our habits, to the point where it can predict our behaviour to a certain extent, also makes day-to-day tasks which are part of a person's routine much easier to accomplish —and such attributes are necessary for the increasingly common personal digital assistant.

Digital Technology and Troublshooting

Troubleshooting in information technology is notoriously painstaking. Through advancements in software automation and artificial intelligence, the process can be made much easier. The most tedious and time-con-suming aspects of common problems can be solved quickly, by automated processes, freeing up human professionals to tackle work on a level to which our abilities with automation have yet to catch up. This has the side benefit of keeping human IT workers more interested, as their jobs are suddenly far less repetitive.

Niharika Shrivastav, Isha Mishra, SYBCA

Industries using RPA

Healthcare
- Registration of Patients
- Maintaining Records of Patients

HR
- Joining Formalities of new Employees
- Process of Payroll

Telecom
- Service Order Management
- Quality Reporting

Insurance
- Processing & Clearance of Claims
- Providing Premium Information

Retail Industries
- Maintaining Bills of Materials
- Calculation of Sales

Travel & Logistic
- Booking of Tickets
- Maintaining Passenger Details

Beyond Academics

Industrial Visits

BISAG

An industrial tour was organized at BISAG – Bhaskaracharya Institute For Space Applications and Geo-Informatics for the students of FCAIT-iMsc(IT). The visit helped the students to learn various types of Remote Sensing, difference between Google Maps Vs. BISAG GIS , types of Images e.g. Pan Images, types of satellite, major GIS application in Gujarat, Gujarat SATCOM network, studio broadcasting – Vande Gujarat and other trainings at BISAG.

108-Emergency Services

Students of IMSc(IT) and PGDCA visited to 108 Emergency centre on 31st July, 2018. The motto of emergency service is Sense-Reach-Care. There are about 550 ambulances in 33 districts of Gujarat equipped with all life saving drugs and an EMT (Emergency Medical Technician).   Students got information and idea about the concept and process of projects of The Emergency Service Centre namely Khilkhilat – The drop back service for women & new born, 181 Abhayam, Aarogya Sanjivani – The Mobile Health Unit for distant remote area, 100 Police number- pilot study in 7 districts.

Divya Bhaskar

An industrial visit was planned on 4th September, 2018 for students of FCAIT-BCA at leading newspaper organization Divya Bhaskar in Ahmedabad. Students accuainted with the pre and post-printing process, ranging from procurement to supply chain, marketing, production cycle, lead times, wastage processing, packaging. They also experienced the process of plate creation on CTP machines for the CMYK process and the printing of the newspaper on the large printer.

E-waste Plant of AMC

Students of FCAIT-iMSc(IT) & PGDCA visited an E-waste plant of Ahmedabad Municipal Corporation located at Vautha, Dholka, Ahmedabad on 29th August, 2018. AMC E-waste plant services work with a unique 4R philosophy – Reuse, Repair / Refurbish, Recover and Recycle. Company, is committed to end-to-end management of electrical and electronic waste in an environment-friendly manner. Student learnt how to recycle electronics or reuse of electronic devices. It includes another method of reuse e-waste materials (such as donation to charity), and having systems dismantled, that allows for the safe extraction of the constituent materials for reuse in other products.

CWDC Activities

Women Self Defence

The seminar was held on 23rd August, 2018 by Shri Jaldeepbhai and Naveetbhai Patel, from Ahmedabad Police Surakhsha Setu Cell. The seminar taught different techniques for self-defense against attack from unknown person.

Balanced Diet

The seminar was held on 8th September, 2018 by Dr. Susmita Chanda, dieticiean from K.D Hospital. This seminar provides awareness about the balanced diet and healthy food habits. The resource person explained about the importance of healthy body and how to stay fit.

Building Self Confidence

The seminar was held on 19th July, 2018 by Ruzan Khambhatta, social enterprenuer and motivational speaker from Wajra o force. The seminar focused on building self confidence and to overcome stress in of our life.

NSS & ISR Activities

NSS Volunteers of FCAIT visited Navrachit Slum School, Prahlad Nagar under NSS activity on 21st July, 2018. The volunteers made an effort to make students aware about the importance of hygiene, especially how to filter driking water.

Malnutrition is a serious problem for underprivileged children which is root cause of various ailements such as tuberculosis. NSS volunteers of FCAIT donated 11000 rs. to "ISKCON Food for Soul Food for Life" non-government organization, which serves mid-day meal to underprivileged children in the rural and tribal areas. This small contribution supports mid-day meal to children in unaided rural schools to build those children's ethical, moral and spiritual values for healthy life in the future.

Date	Events
27/08/18	Tree Distribution
28/08/18	Blood Donation
14/07/18	Visit to Nav Rachit Slum School
26/07/18	E-Waste Collection
06/07/18	NSS Volunteer Pledge
05/09/18	Stationary kit distribution at Municipality School
0709/18	Visit to under previleged students of NGO Helpline Education
09/09/18	Food Packet Distribution in Gulbai Tekra Slum Area
03/11/18	ISKCON food for life food for Soul

Alumni Interaction

FCAIT regularly interacts with alumnis who have settled in various countries across the world. This time we connected with one of our alumni Mr. Avish Shah, Software Engineer at Sho Technology Solutions, LLC, Scranton, Pennsylvania . The skype interactions have been found to be very interesting and fruitful by the students since they gather information about the work culture, prospects and the current IT scenario in that country.

Seminars & Workshops

1. TECH TALK

On 11th July, 2018 a Tech talk based on Google I/O was organised at FCAIT. The talk was conceptualised, planned and organised by Tech Talk Student Volunteer Group. The talk included Introductory Video, I/O Device Video Compilation and Interaction with audience.

2. E-Waste Management

A seminar on "E-Waste Management" was conducted on 26th July, 2018 for the students of second year of FCAIT. The resource person Mr. Vijay Mandora – Chairman & Managing Director of ECS Corporation gave insight on how to conserve natural resources, protect the surroundings to promote safe recycling of outdated or unused electronic products.

3. SOFTWARE TESTING

A seminar on "Software Testing" was conducted on 27th July, 2018 for students of iMSc(IT) by Prof. Garima Mishra, FCAIT, GLSU. The seminar focused on various aspects of software testing and practical implementation of software testing.

4. PERSONALITY DEVELOPMENT

A seminar on "Personality Development" was conducted on 7th July, 2018 for students of iMSc(IT) and PGDCA. The resource person Mr. Shravan Nair gave insight on various facets of personality, grooming ourselves and presenting for public appearances and interviews, etc.

5. EMERGING TRENDS IN IT

A seminar on "Emerging Trends in IT" was conducted on 20th July, 2018 for students of iMSc(IT) and PGDCA. The resource person Prof. Disha Shah, FCAIT,GLSU and Prof. Ankita Kanojiya,FCAIT,GLSU. The seminar was conducted with a vision to make the students aware with various upcoming, trending and blooming technologies like IOT, Data Analytics, Big data, Li-Fi, Immersive Experiences, etc.

CSI / Guest Lecture

1 — 21st July, 2018
Workshop on AngularJS
Dr. Purna Tanna, FCAIT,GLSU
Prof. Riddhi Kundal,FCAIT,GLSU

2 — 28th July, 2018
Worskshop on R Programming Language
Prof. Vidhi Thakkar,FCAIT,GLSU

3 — 16th January, 2018
Workshop on iOS Mobile Application Development
Prof. Vishal Narvani,FCAIT,GLSU

4 — 09th July, 2018
Lecture on Career Options
Mr. Prashant Sugandh
Mr. Aditya Sharma
(Career Launcher)

5 — 24th July, 2018
Lecture on Vedic Maths & GDPI
Mr. Hitesh Jain
Mr. Chandramauli Bhatt
(Renaissance)

6 — 26th July, 2018
Lecture on Communication Skills & Personality Development
Mr. Narendra Gupta
(Inspire Pvt. Ltd.)

"IMAGINATION", 3rd Youth Festival of GLS University was organised from 23rd September, 2018 to 25th September, 2018 on the theme "Safarnama" ("Wanderlust"). There were 24 events in varied categories such as Performing Arts, Fine Arts and Story Telling. The students of FCAIT performed enthusiastically and won prizes in various events.

EVENT	PRIZE	PARTICIPANT	COURSE
FASHION SHOW	WINNER	TEAM BCA	
STORY WRITING	WINNER	PALAK RAJGARIYA	FY BCA
FACE PAINTING	WINNER	DHAVAL VACCHETA	SY iMSc(IT)
STANDUP COMEDY	1ST RUNNERUP	ADITYA SINGH	FY BCA
POETRY RECITATION	1ST RUNNERUP	PALAK RAJGARIYA	FY BCA
MIME	2ND RUNNERUP	TEAM BCA	
POEM WRITING	2ND RUNNERUP	TRUSHA BHAVSAR	SY iMSc(IT)
FACE PAINTING	2ND RUNNERUP	SAKSHI SANGHVI	TY BCA
ABOUT TURN	2ND RUNNERUP	RUTVI BHATT	FY iMSc(IT)