# PRODUCT AVAILABILITY CHECKER
## A PROJECT REPORT

*Submitted by*

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*in partial fulfillment for the course*

**OAI1903 - INTRODUCTION TO ROBOTIC PROCESS AUTOMATION**

*for the degree of*

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*in*

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**RAJALAKSHMI NAGAR**
**THANDALAM CHENNAI – 602 105**

**NOVEMBER 2024**

**RAJALAKSHMI ENGINEERING COLLEGE**

**CHENNAI - 602105**

# BONAFIDE CERTIFICATE

Certified that this project report **"The Product Availability Checker "** is the bonafide work of **"ARTHEY C (220701028)"** who carried out the project work for the subject OAI1903 - Introduction to Robotic Process Automation under my supervision.


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**Internal Examiner** **External Examiner**

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# ABSTRACT

**"The Product Availability Checker Bot"** is a smart RPA solution built using UiPath Studio to automate product stock monitoring on e-commerce platforms like Amazon. This bot simplifies the process by reading a list of product names and URLs from an Excel file, systematically checking their availability, and ensuring timely updates for users.

For in-stock items, the bot immediately sends email notifications with product details, such as the name, URL, and availability status. For out-of-stock items, the bot enters a loop to recheck their status every 30 minutes. Once an unavailable product is restocked, the bot promptly notifies the user. This process continues until all products are available or the bot is stopped.

The **Product Availability Checker Bot** eliminates the need for manual monitoring, saving time and reducing hassle. By leveraging automation and real-time notifications, it ensures users never miss the opportunity to purchase their desired products. This efficient and user-friendly solution highlights the power of RPA in enhancing e-commerce convenience.

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# LIST OF FIGURES

# CHAPTER 1

# INTRODUCTION

## 1.1 INTRODUCTION

**"The Product Availability Checker Bot"** is a state-of-the-art Robotic Process Automation (RPA) solution built on the powerful UiPath platform. It is meticulously designed to streamline and simplify the process of tracking product stock status on e-commerce platforms, particularly Amazon. In today's fast-paced world, where timely updates on product availability can make a significant difference, this innovative bot delivers a seamless and automated solution, ensuring users never miss out on purchasing their desired products.

The bot is tailored for online shoppers and businesses managing inventory, providing a game-changing approach to stock monitoring. By reading a list of product names and URLs from an Excel file, it automates the repetitive and time-consuming task of checking stock statuses. Once a product is detected as in stock, the bot promptly sends an email notification with all the necessary details, such as the product name, URL, and availability status, ensuring users receive real-time updates. For products that are unavailable, the bot uses an intelligent looping mechanism to recheck their stock status every 30 minutes, continuing this process until the product is restocked and promptly notifying the user.

The solution leverages the advanced capabilities of the UiPath platform, which combines AI-powered computer vision with APIs and pre-built automation components. This enables users to create efficient, automated workflows with minimal coding effort. UiPath's built-in OCR engines and intelligent bots further enhance the platform's ability to handle complex tasks, like reading

product information from websites and automating decision-making processes. By simplifying these tasks, UiPath reduces the manual effort required and ensures accuracy and consistency in monitoring.

The **Product Availability Checker Bot** is an exemplary use of the UiPath Automation Platform, combining a low-code integrated development environment (IDE) with robust execution agents. This user-friendly and reliable solution transforms the tedious task of manual product monitoring into a smooth and efficient automated experience. It empowers users to stay ahead by providing timely updates, streamlining e-commerce operations, and ensuring convenience in managing product availability. Whether for individual shoppers or businesses, this bot sets a new standard in automated stock monitoring, delivering reliability and peace of mind.

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## 1.2 OBJECTIVE

The primary objective of **"The Product Availability Checker Bot"** is to revolutionize the process of tracking product stock status on e-commerce platforms. By leveraging Robotic Process Automation (RPA), the bot aims to automate the monitoring of product availability, ensuring timely updates for users. The project seeks to provide shoppers and businesses with an efficient, accurate, and hassle-free solution to track stock updates and make informed purchasing decisions.

## 1.3 EXISTING SYSTEM

In the current landscape, monitoring product availability on e-commerce platforms is a manual and repetitive task. Users often need to revisit websites frequently to check if products are back in stock, which is both time-consuming and inefficient. This process involves continuously browsing, searching for specific items, and manually refreshing pages, creating inconvenience and delays. The lack of automation makes it challenging to ensure timely updates, leading to missed opportunities for purchasing desired products.

## 1.4 PROPOSED SYSTEM

**"The Product Availability Checker Bot"** is envisioned as a transformative solution to the limitations of the existing system. Utilizing UiPath's RPA capabilities, the bot automates the entire process of stock monitoring by reading product details from an Excel file and systematically checking their availability on platforms like Amazon. For in-stock products, the bot sends real-time email notifications with essential details, ensuring users are

promptly informed. For out-of-stock items, the bot employs a smart looping mechanism to recheck their status every 30 minutes and sends notifications as soon as the product becomes available.

The proposed system eliminates the need for manual monitoring, significantly reducing the time and effort required. It also ensures consistent and reliable updates, empowering users with accurate information. The bot's features extend to generating detailed reports, including product names, URLs, stock status, and timestamps, offering a comprehensive overview of monitored items. This project aims to enhance convenience and efficiency in stock tracking, setting a new benchmark for automated e-commerce solutions.

# CHAPTER 2

# SYSTEM DESIGN

## 2.1 SYSTEM FLOW DIAGRAM

A flowchart is a type of diagram that represents an algorithm, workflow or process. The flowchart shows the steps as boxes of various kinds, and their order by connecting the boxes with arrows. This diagrammatic representation illustrates a solution model to a given problem. The system flow diagram for this project is in Fig. 3.1.

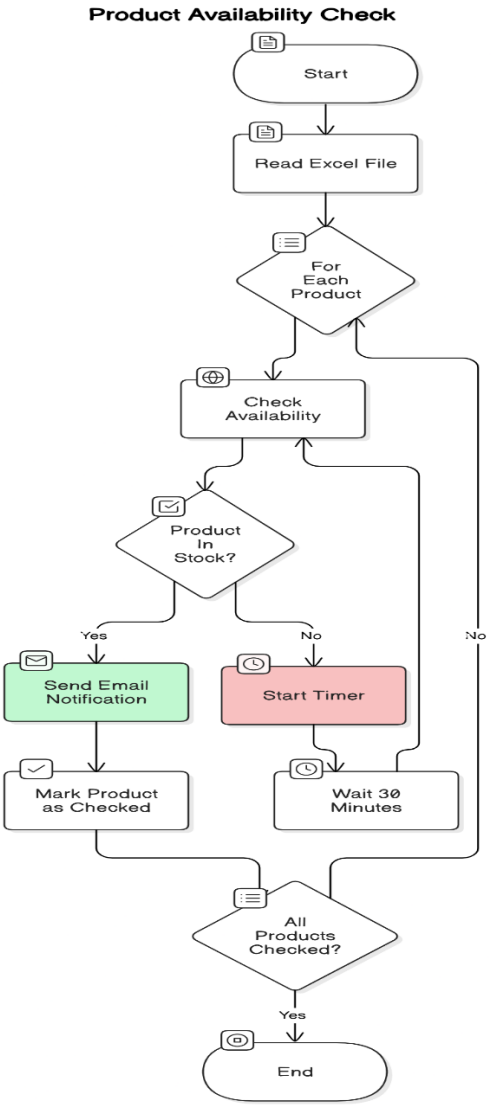



Fig 2.1.1 System Flow Diagram

## 2.2 ARCHITECTURE DIAGRAM

An architecture diagram is a graphical representation of a set of concepts, that are part of an architecture, including their principles, elements and components. The architecture diagram for this project is in Fig. 3.2.

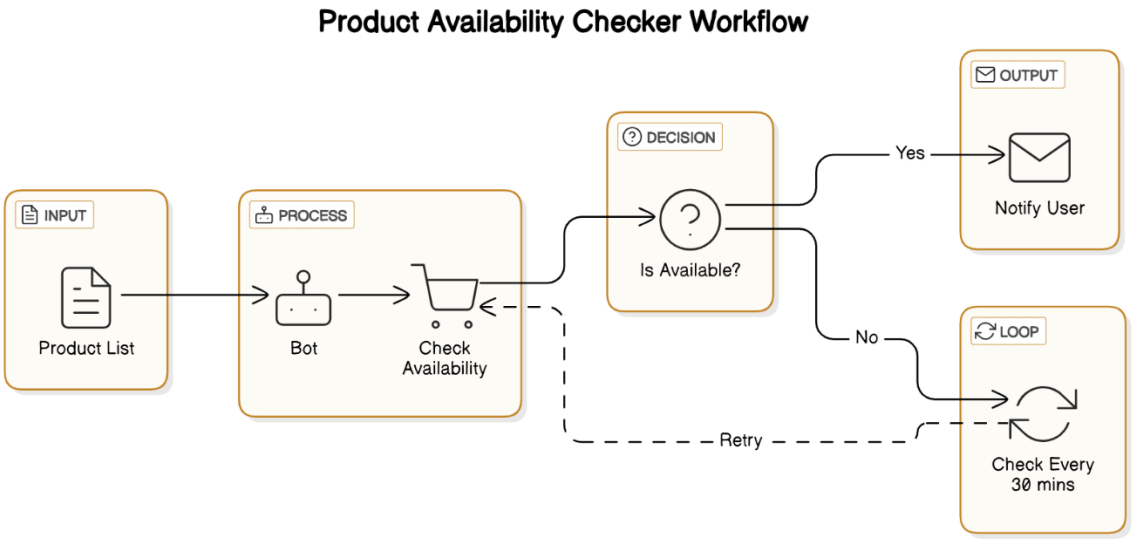



Fig 2.2.1 Architecture Diagram

## 2.3 SEQUENCE DIAGRAM

A sequence diagram is a type of interaction diagram because it describe and show in what order a group of objects works together. The sequence diagram for this project is in Fig. 3.3.

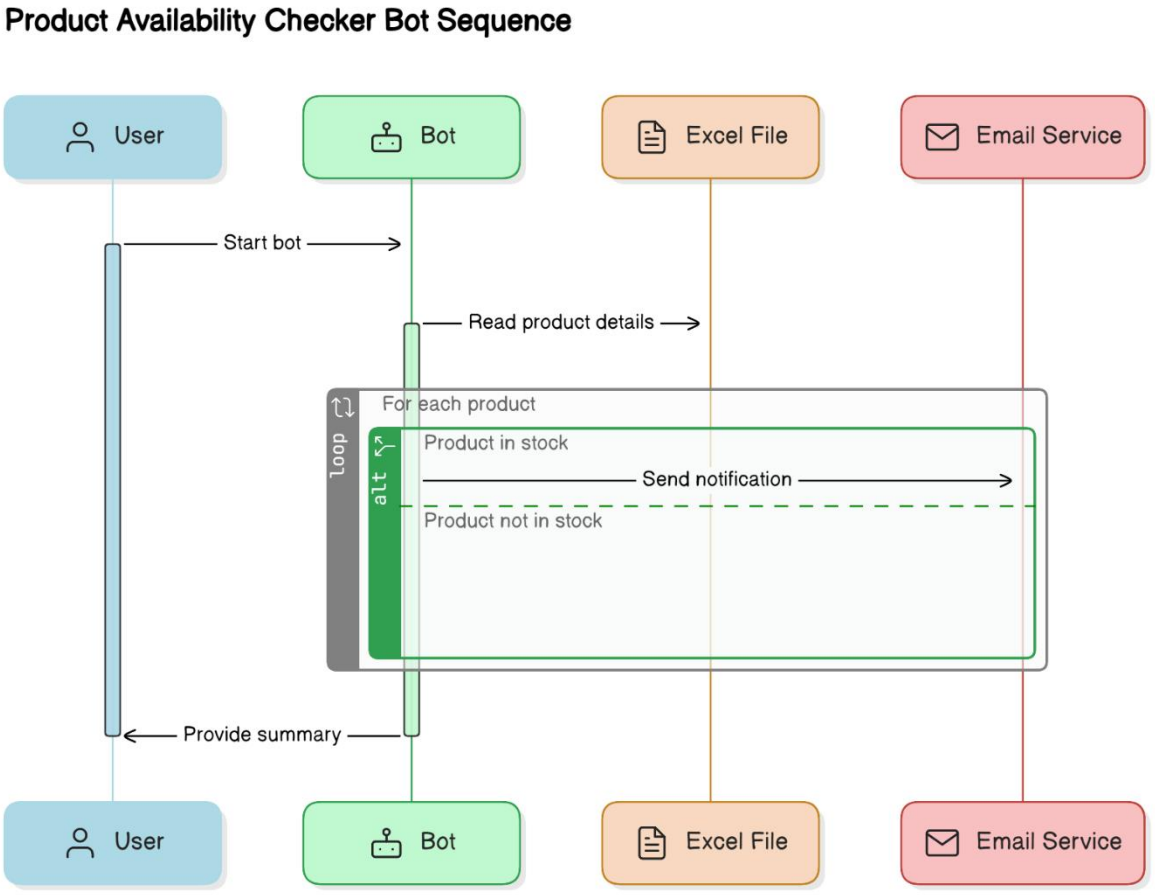



Fig 2.3.1 Sequence Diagram

# CHAPTER 3

# PROJECT DESCRIPTION

"The Product Availability Checker Bot" is an advanced Robotic Process Automation (RPA) project designed to automate the task of monitoring product stock availability on e-commerce platforms like Amazon. Developed using UiPath, this intelligent bot enhances efficiency by providing real-time updates to users about product restocks, ensuring timely notifications for informed purchasing decisions.

## 3.1. MODULES:

### 3.1.1. INPUT HANDLING AND INITIALIZATION:

#### 3.1.1.1. Excel File Integration:

- Accept an Excel file containing product names and their respective URLs..

#### 3.1.1.2. Data Validation:

- Verify the validity of input data (e.g., valid URLs).
- Display an error message for invalid entries, if any..

### 3.1.2 PRODUCT AVAILABILITY CHECKING

#### 3.1.2.1 Product Iteration:

- Iterate through each Word document in the selected subfolder.

#### 3.1.2.2 Stock Status Retrieval:

- Access the product URL on the e-commerce platform.
- Scrape stock availability details using UiPath web automation tools.

### 3.1.3 NOTIFICATION MANAGEMENT:

#### 3.1.3.1 Email Notifications:

- Send an email notification to the user when a product is in stock

#### 3.1.3.2 Smart Rechecking:

- For unavailable products, implement a 30-minute loop to recheck stock status until availability is confirmed.

### 3.1.4 COMPLETION AND REPORTING:

#### 3.1.4.1 Completion Report:

- Generate a summary Excel report detailing the stock status of each product.

#### 3.1.4.2 Final Notification:

- Notify the user of the completion of all checks and provide

The generated output

# CHAPTER 4

# OUTPUT SCREENSHOTS

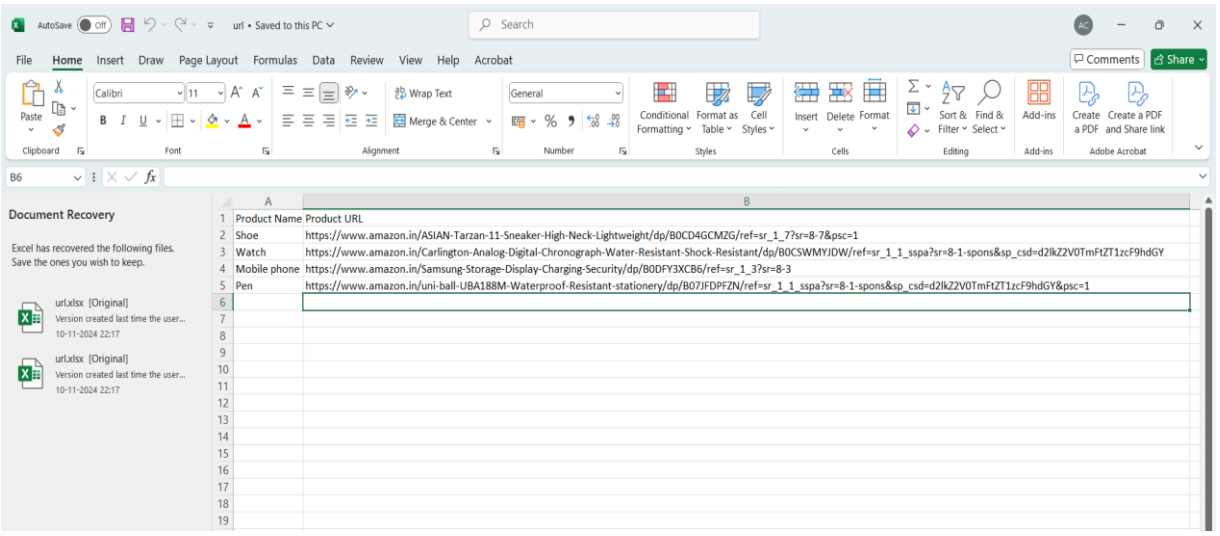



Fig 4.1 – Excel File Containing Product Details

This is the Excel file used as input for the bot, containing a list of product names and their corresponding URLs, which the bot reads to initiate the stock monitoring process, as shown in **Fig. 4.1**.

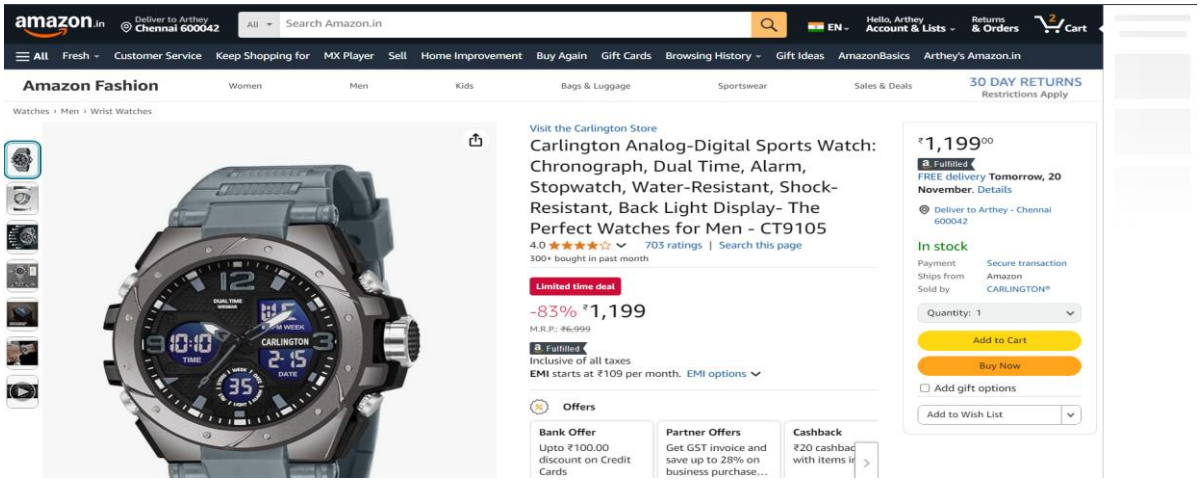



Fig 4.2 – Amazon Website Stock Verification

This is the Amazon website where the bot verifies the stock availability of the products listed in the input Excel file, as depicted in **Fig. 4.3**.

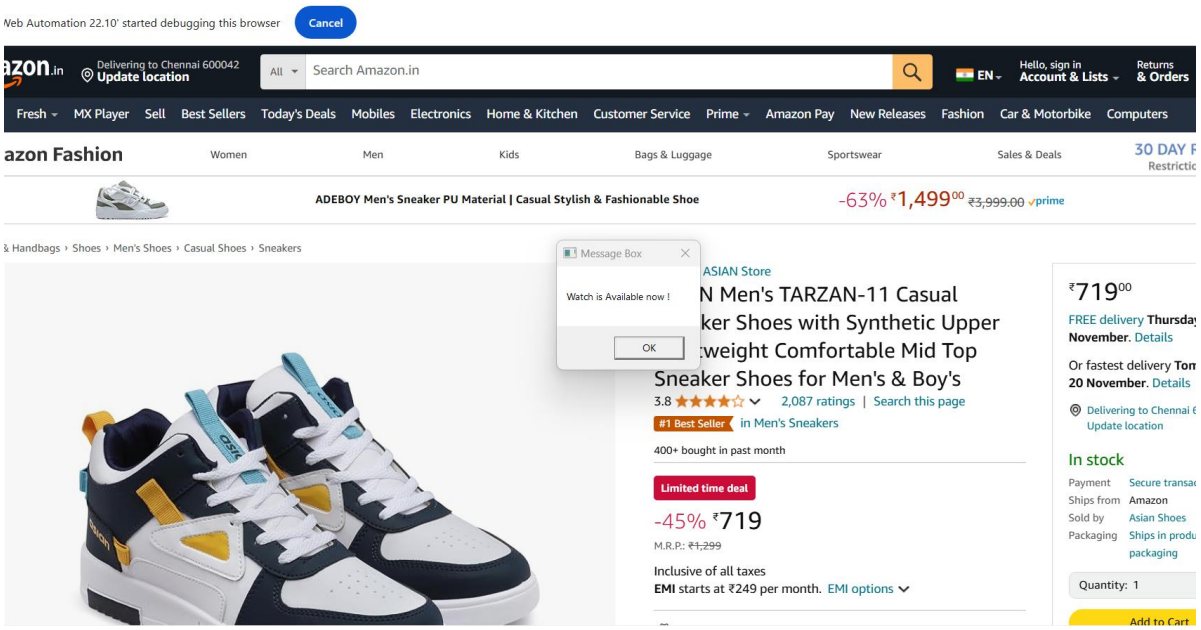



Fig 4.3 – Product Availability Notification Message

The bot displays a message box notifying the user that the product is available, as depicted in Fig. 4.3.

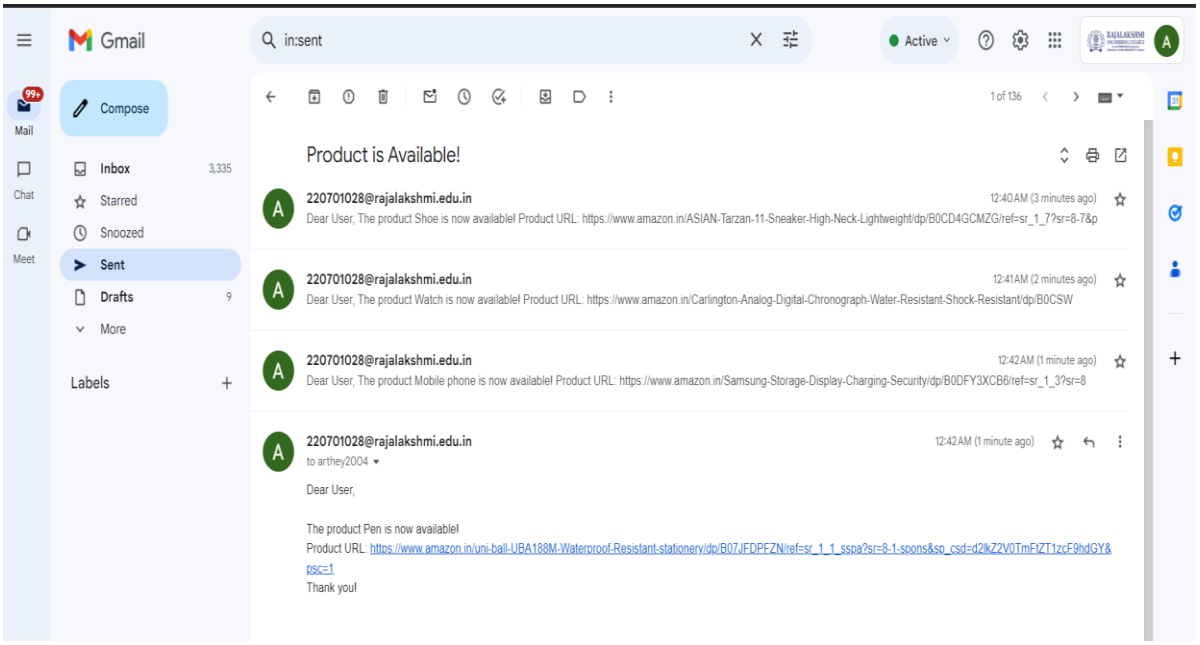



Fig 4.4– Email Notification of Available Products

The bot sends an email listing all the available products, as shown in Fig. 4.4.

# CHAPTER 5

# CONCLUSION

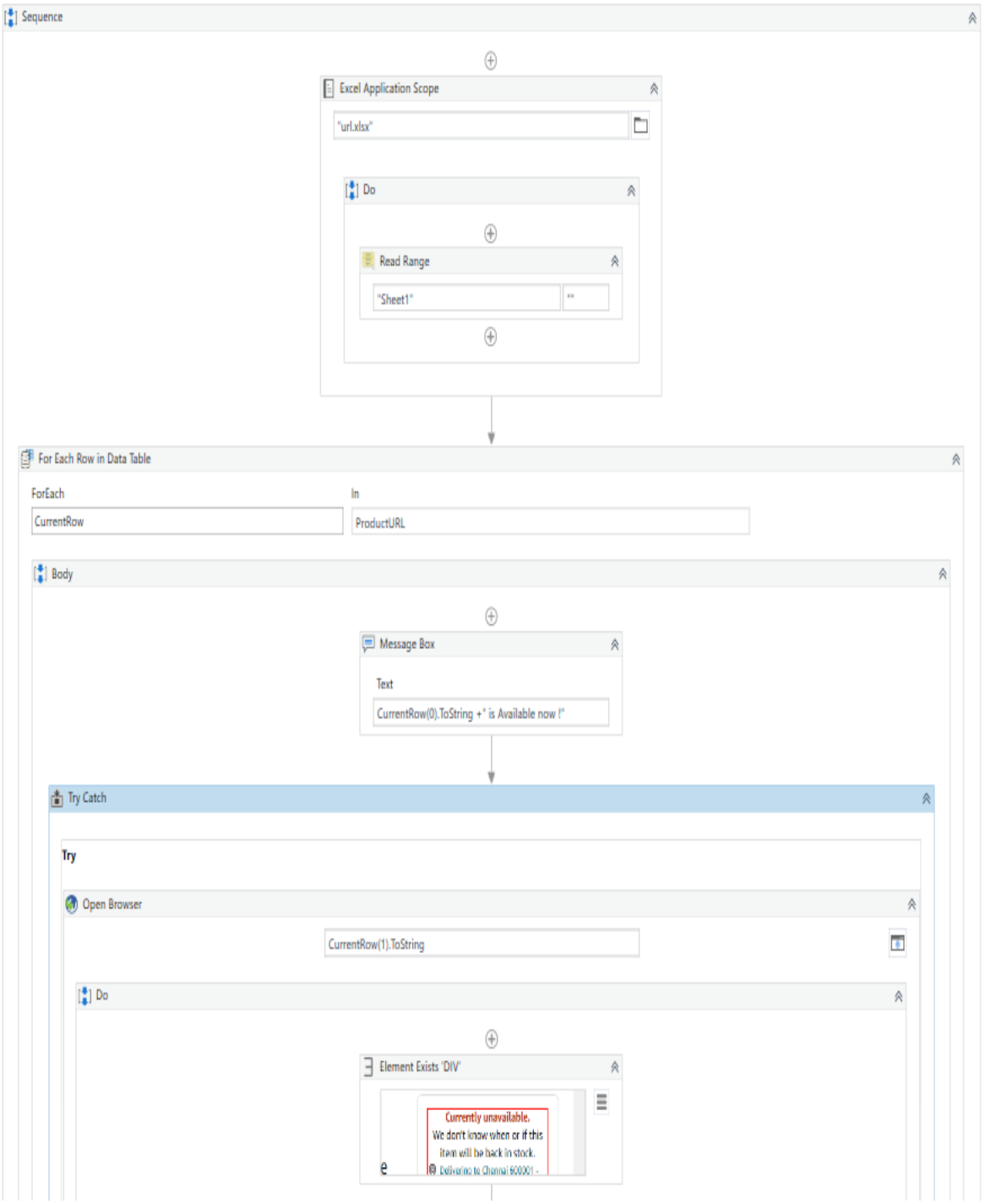
"The Product Availability Checker Bot" redefines online shopping experiences by leveraging UiPath's Robotic Process Automation (RPA) to automate the process of tracking product stock status. This innovative solution enhances efficiency, ensuring users never miss the opportunity to purchase desired products.

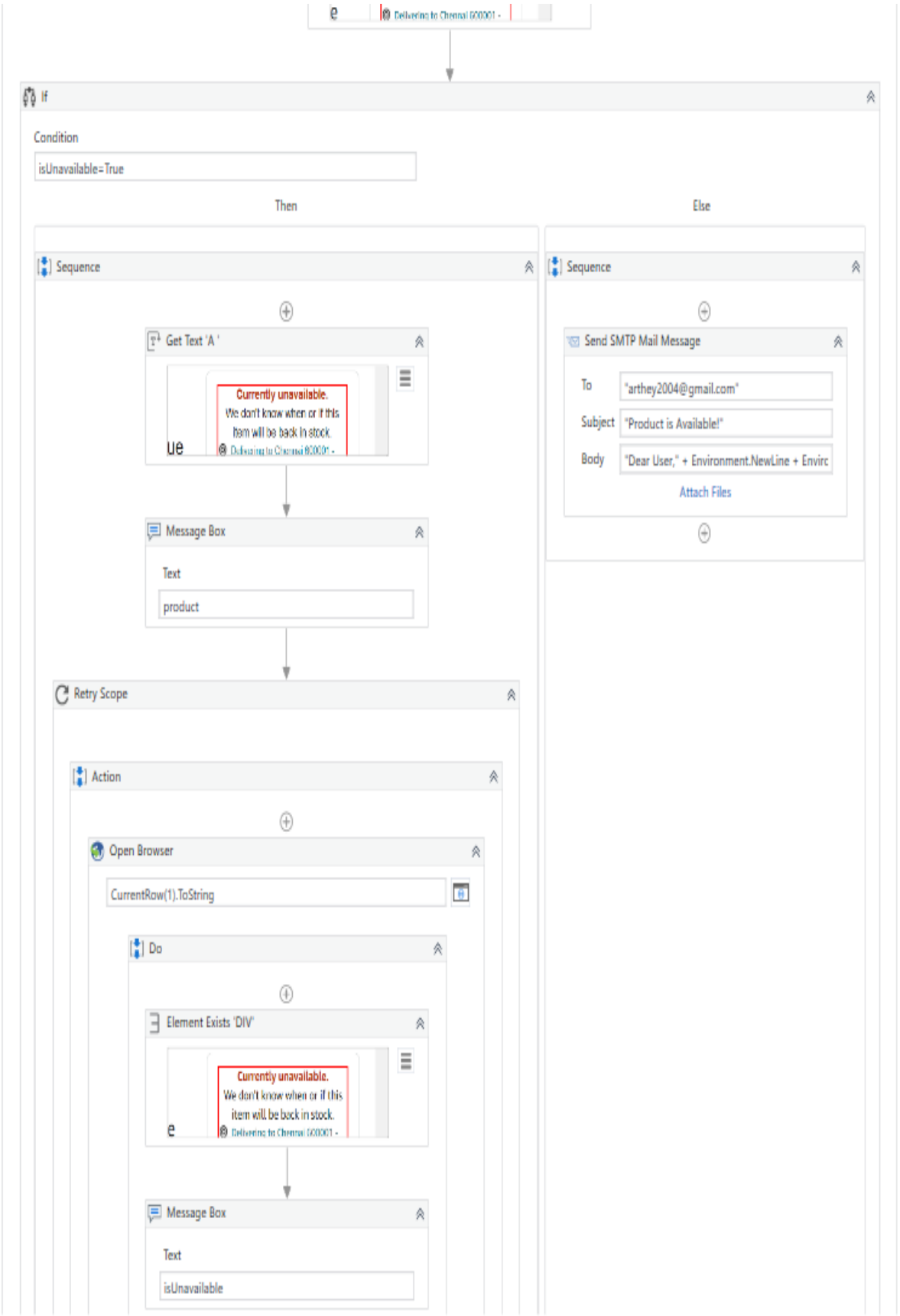
The bot's real-time updates and email notifications provide users with prompt alerts on product availability, simplifying inventory management for businesses and enhancing the shopping experience for consumers. By automating the tedious task of stock monitoring, the bot reduces manual effort, making the process smoother and more reliable.

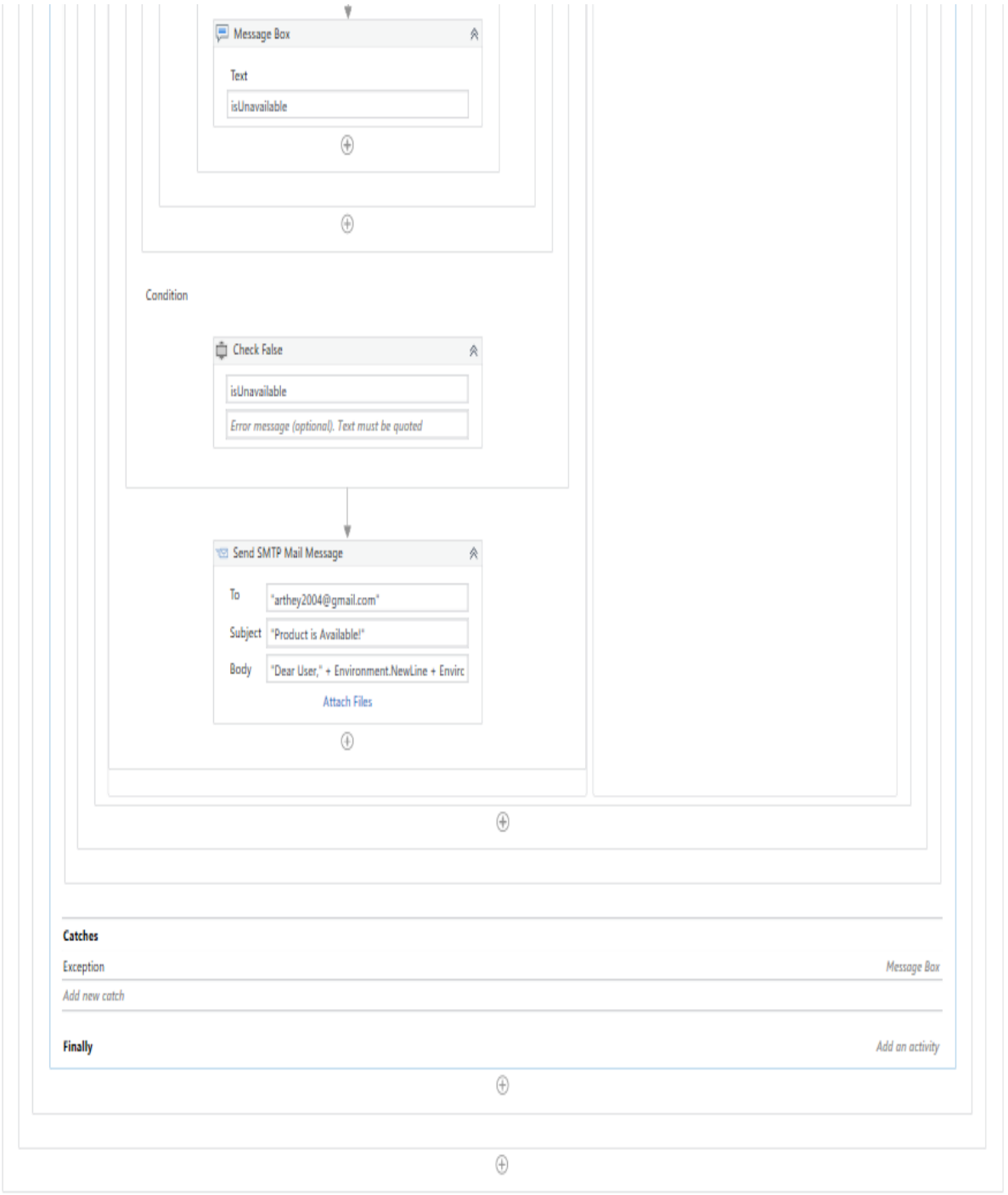
However, challenges such as handling unexpected website changes or complex product variations may arise. Regular updates and improvements are essential to maintain the bot's accuracy and functionality in a dynamic e-commerce environment. Nonetheless, the project sets a new standard for automated stock tracking, significantly contributing to e-commerce and customer experience enhancement. The successful implementation highlights the potential of RPA in transforming retail processes in the digital age.

# APPENDIX

# PROCESS WORK FLOW




If
Condition
isUnavailable=True
Then
Else
Sequence
Get Text 'A '
Currently unavailable.
We don't know when or if this item will be back in stock.
Message Box
Text
product
Retry Scope
Action
Open Browser
CurrentRow(1).ToString
Do
Element Exists 'DIV'
Currently unavailable.
We don't know when or if this item will be back in stock.
Message Box
Text
isUnavailable
Sequence
Send SMTP Mail Message
To
"arthey2004@gmail.com"
Subject
"Product is Available!"
Body
"Dear User," + Environment.NewLine + Envirc
Attach Files


Message Box
Text
isUnavailable
Condition
Check False
isUnavailable
Error message (optional). Text must be quoted
Send SMTP Mail Message
To
"arthey2004@gmail.com"
Subject
"Product is Available!"
Body
"Dear User," + Environment.NewLine + Envirc
Attach Files
Catches
Exception
Message Box
Add new catch
Finally
Add an activity

# REFERENCES


[1] Kumar, S., & Verma, R. (2021). Robotic Process Automation in E-commerce: A Study on its Role in Online Retail Automation. *International Journal of Advanced Research in Computer Science and Engineering*, 8(4), 1234-1238.

[2] Sharma, P., & Yadav, M. (2020). Leveraging Robotic Process Automation in Retail to Enhance Stock Monitoring and Management. *Journal of Retail and Consumer Services*, 55, 102074.

[3] Zhang, H., & Li, W. (2022). AI-Driven Stock Availability Monitoring: A Review of Algorithms and Applications. *International Journal of AI & Robotics*, 19(2), 84-98.

[4] Singh, V., & Agarwal, P. (2019). Enhancing E-commerce Operations with Robotic Process Automation: A Case Study. *International Journal of Business Automation and Intelligence*, 6(3), 56-61.

[5] Hussain, A., & Alam, S. (2021). Email Automation in Retail: Streamlining Product Availability Notifications through Robotic Process Automation. *Journal of Retailing and Consumer Studies*, 12(1), 44-55. https://doi.org/10.1080/12284765.2021.1832049

[6] Patel, S., & Desai, A. (2020). AI-Driven Automation in E-commerce: Real-Time Product Stock Monitoring and Notifications. *Proceedings of the International Conference on Data Science and E-commerce Applications*, 67-72.