ELDERLY CARE REMINDER BOT

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

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

RAJALAKSHMI ENGINEERING COLLEGE

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NOVEMBER 2024

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BONAFIDE CERTIFICATE

Certified that this project report **"Elderly Care Reminder Bot"** is the bonafide work of **"ASHMITA R (2116220701031)"** who carried out the project work for the subject OAI1903 - Introduction to Robotic Process Automation under my supervision.

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ACKNOWLEDGEMENT

Initially we thank the Almighty for being with us through every walk of our life and showering his blessings through the endeavour to put forth this report. Our sincere thanks to our Chairman **Thiru. S. Meganathan, B.E, F.I.E.,** our Vice Chairman **Mr. Abhay Shankar Meganathan, B.E., M.S.,** and our respected Chairperson **Dr. (Mrs.) Thangam Meganathan, M.A., M.Phil., Ph.D.,** for providing us with the requisite infrastructure and sincere endeavouring in educating us in their premier institution.

Our sincere thanks to **Dr. S.N. Murugesan, M.E., Ph.D.,** our beloved Principal for his kind support and facilities provided to complete our work in time. We express our sincere thanks to **Dr. P. KUMAR, M.E., Ph.D.,** Professor and Head of the Department of Computer Science and Engineering for his guidance and encouragement throughout the project work. We convey our sincere and deepest gratitude to our internal guides, **Mrs. J. Jinu Sophia, M.E., (Ph.D),** Assistant Professor (SG), Department of Computer Science and Engineering, Rajalakshmi Engineering College for their valuable guidance throughout the course of the project. We are very glad to thank our Project Coordinators, **Dr. N. Durai Murugan, M.E., Ph.D.,** Associate Professor, and **Mr. B. Bhuvaneswaran, M.E.,** Assistant Professor (SG), Department of Computer Science and Engineering for their useful tips during our review to build our project.

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ABSTRACT

The Elderly Care Reminder Bot is a thoughtfully designed application aimed at enhancing caregiving by ensuring timely reminders for elderly care activities. The bot utilizes an Excel sheet containing predefined schedules, including the reminder time, personalized message, and caregiver email ID. By extracting this data, the bot continuously monitors the current system time and checks if it matches the scheduled time for a reminder.

When the scheduled time aligns with the current time, the bot automatically triggers an email to the caregiver with the designated message, ensuring prompt communication. In scenarios where the time does not match, a delay mechanism is applied to optimize resource usage while maintaining the accuracy of reminders.

This system ensures seamless integration of technology into caregiving, providing caregivers with precise, timely, and reliable notifications. The Elderly Care Reminder Bot streamlines care schedules, reduces human oversight, and supports the well-being of elderly individuals by promoting adherence to care routines. Designed for efficiency and user-friendliness, this bot addresses the growing demand for effective digital solutions in the domain of elder care management

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LIST OF ABBREVIATIONS

ABBREVIATION	ACCRONYM
RPA	Robotic Process Automation
AI	Artificial Intelligence
API	Application Programming Interface
CV	Computer Vision
OCR	Optical Character Recognition

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

In today’s fast-paced world, caring for the elderly often requires precise time management and efficient communication, especially for caregivers managing multiple tasks. An **Elderly Care Reminder Bot** serves as an invaluable tool in ensuring that critical caregiving tasks are performed on time and that caregivers remain well-informed. Leveraging automation, the bot operates as a task scheduler and notifier, bridging the gap between scheduled activities and timely execution. With its foundation in technologies like Excel for data storage and SMTP for communication, the bot provides a seamless experience for both caregivers and care receivers.

The bot utilizes an Excel sheet as a simple and accessible interface for inputting caregiving schedules. Users can store information such as the time of tasks, the details of the activities, and the caregiver's email address. By extracting the current time and comparing it with the scheduled times, the bot ensures timely notifications. If the scheduled time has not yet arrived, a delay mechanism is applied to wait until the specified time, after which an SMTP email is sent to notify the caregiver. This automated process ensures reliability and minimizes the risk of missed tasks, making caregiving more organized and stress-free.
This solution is particularly beneficial for elderly care as it ensures punctuality in administering medications, monitoring health parameters, or attending to specific needs. Its straightforward implementation makes it adaptable to various caregiving scenarios while reducing manual oversight. By fostering timely communication and enhancing caregiving efficiency, this bot significantly contributes to improving the quality of life for the elderly and easing the workload of their caregivers.

1.2 OBJECTIVE

The primary objective of the **Elderly Care Reminder Bot** is to streamline caregiving processes by providing timely and automated task notifications to caregivers. By utilizing a simple Excel sheet for data storage and an SMTP-based notification system, the bot ensures that scheduled tasks such as medication reminders, health check-ups, and routine caregiving activities are performed on time. This tool aims to enhance the efficiency of elderly care management, reduce the chances of missed tasks, and foster better communication between caregivers and those under their care. Ultimately, the bot seeks to improve the quality of life for the elderly while alleviating the caregiving burden through a reliable and user-friendly system.

1.3 EXISTING SYSTEM

Currently, task scheduling and reminders in elderly care are often handled manually or through basic tools like calendar apps and alarms. While helpful, these methods lack the customization needed for varied caregiving tasks and rely heavily on caregiver attentiveness, increasing the risk of missed or delayed tasks. Communication about schedules is often done via calls or messages, which can be inconsistent. These challenges underline the need for an automated, reliable system to ensure timely care and ease the burden on caregivers

1.2 PROPOSED SYSTEM

The proposed system for the **Elderly Care Reminder Bot** aims to automate and simplify the process of managing caregiving schedules. Using an Excel sheet as the central data repository, users can input task details, scheduled times, and caregiver email addresses. The bot will continuously compare the current time with the scheduled tasks and send an SMTP email notification to the caregiver when a match is found. If the scheduled time has not yet arrived, a delay mechanism will ensure the bot waits until the specified time before triggering the notification.

This system eliminates the dependency on manual tracking and reduces the risk of missed tasks, ensuring timely execution of caregiving activities. By leveraging automation, the proposed system not only improves task management efficiency but also enhances communication between caregivers and the elderly, offering a reliable and user-friendly solution tailored to the unique needs of elderly care

CHAPTER 3

SYSTEM DESIGN

3.1 SYSTEM FLOW DIAGRAM

The Elderly Care Reminder Bot retrieves task schedules from an Excel sheet, compares the current time with scheduled times, and sends email notifications via SMTP when a match occurs. If the scheduled time is yet to come, the system applies a delay until the task time is reached before triggering the notification. Fig. 3.1.

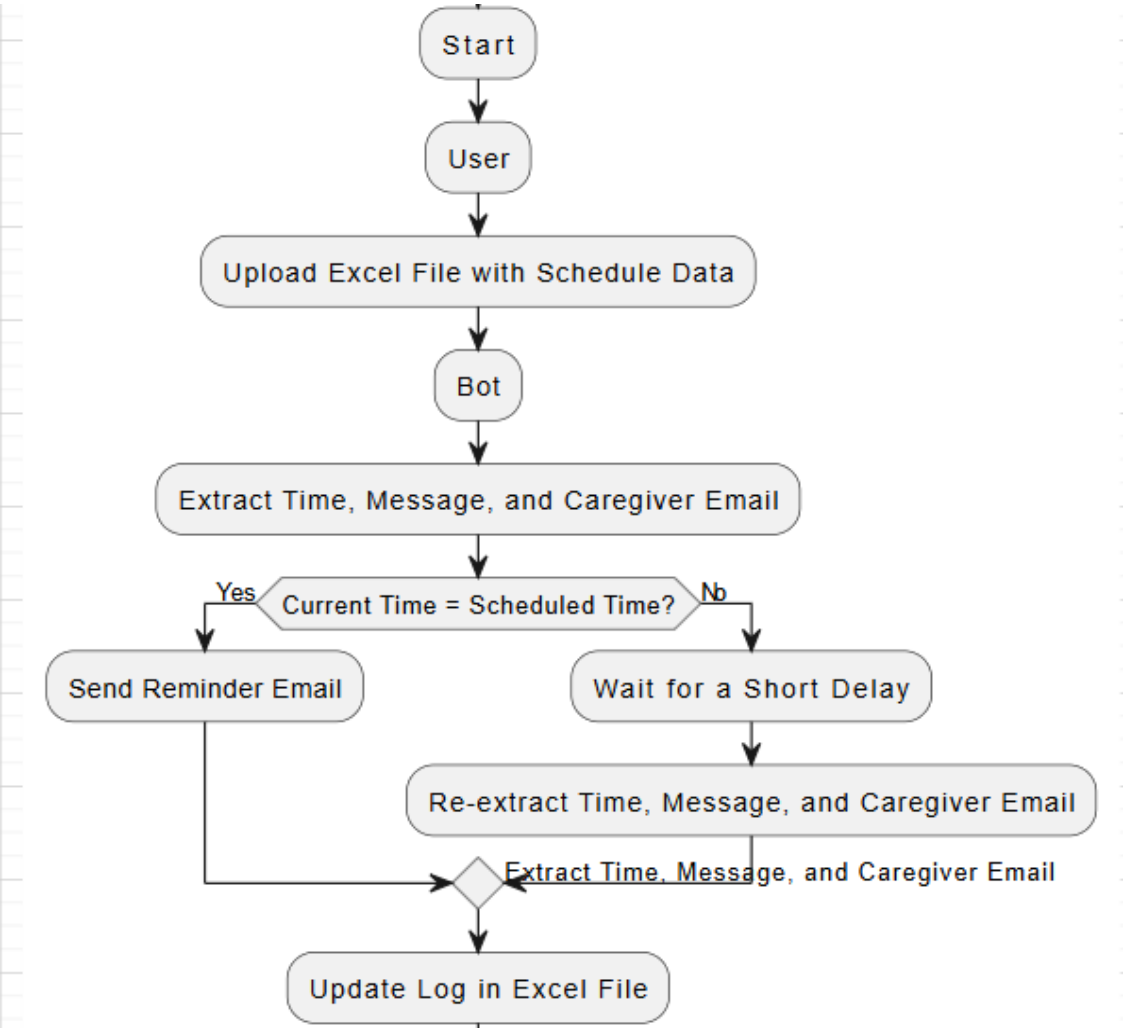


Fig 3.1 System Flow Diagram

3.2 ARCHITECTURE DIAGRAM

The architecture of the Elderly Care Reminder Bot consists of an Excel sheet for task scheduling, a processing module to extract and compare times, and an SMTP server to send email notifications. The system integrates these components to ensure seamless automation and timely reminders.in Fig. 3.2.

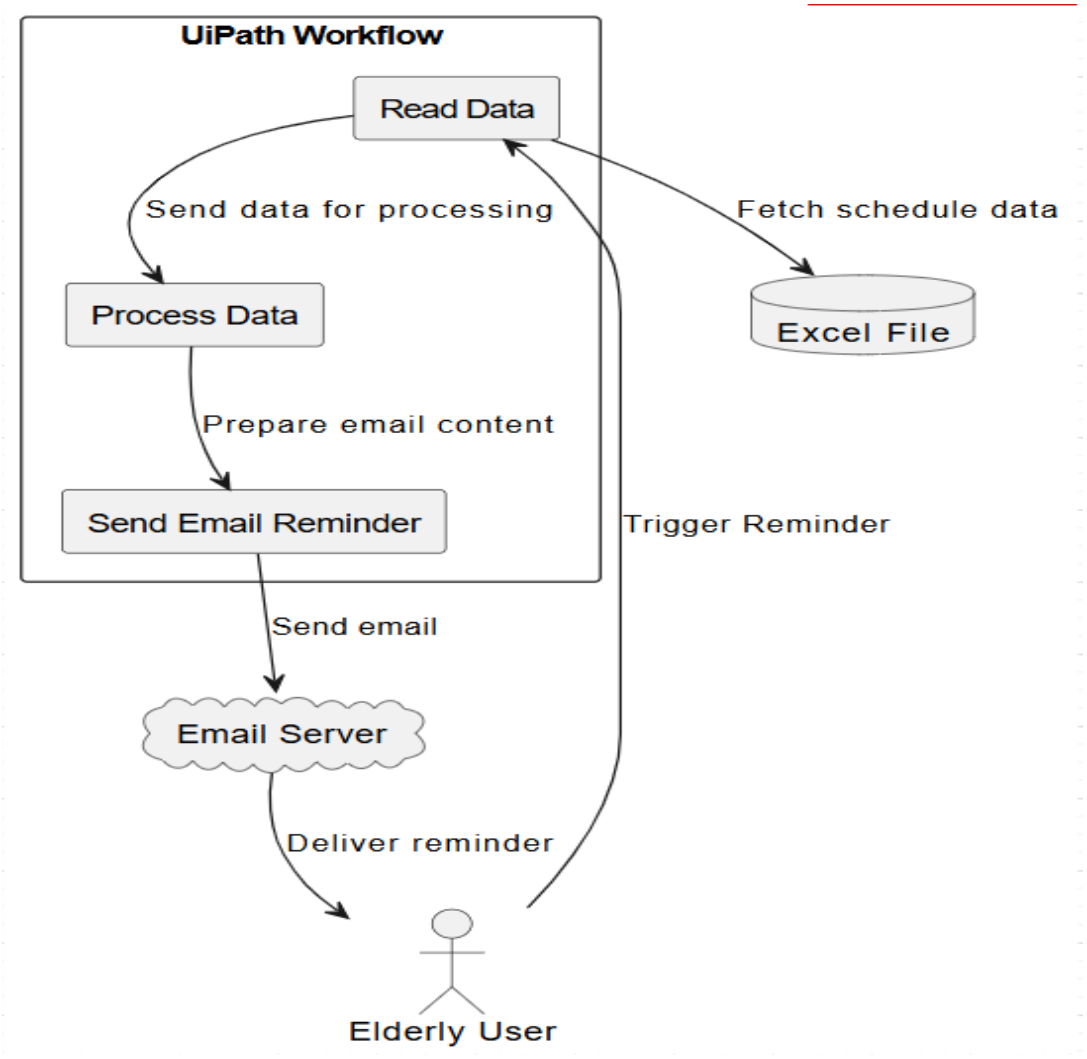


Fig 3.2 Architecture Diagram

3.3 SEQUENCE DIAGRAM

The sequence diagram illustrates the flow where the user inputs task details into the Excel sheet, the bot periodically checks the current time against the schedule, and upon a match, sends an email notification via the SMTP server to the caregiver. If no match is found, the bot delays and rechecks until the scheduled timein Fig. 3.3.

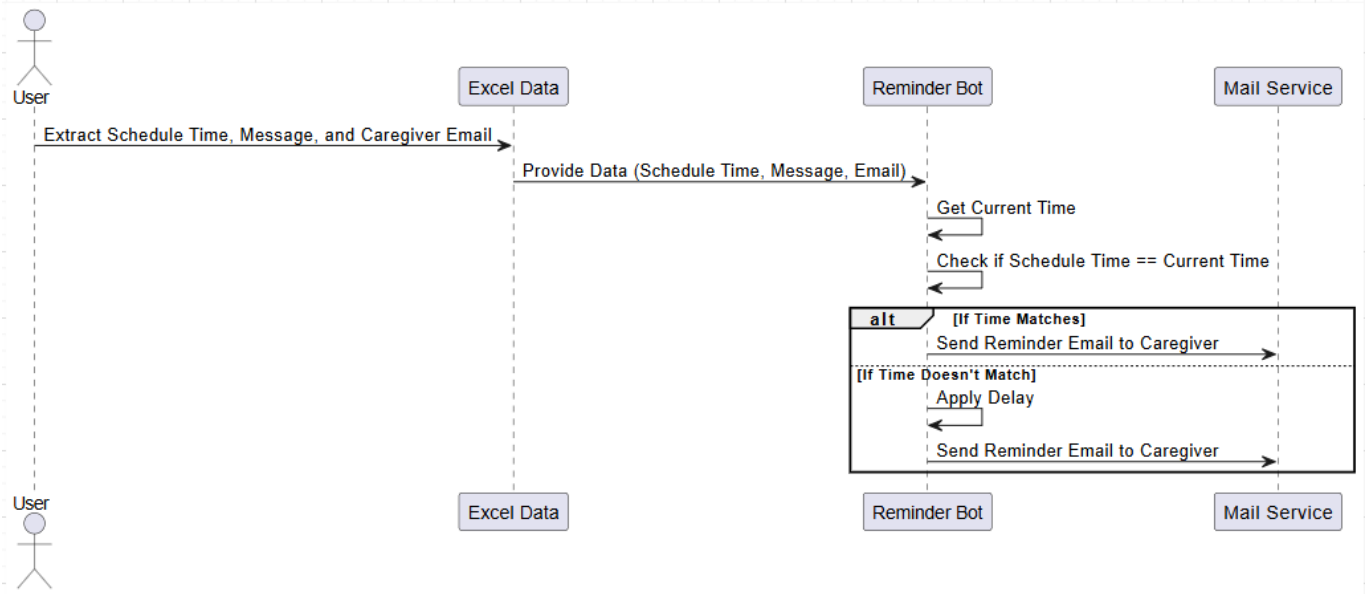


Fig 3.3 Sequence Diagram

CHAPTER 4

PROJECT DESCRIPTION

The **Elderly Care Reminder Bot** is an automated system designed to assist caregivers in managing their daily tasks for elderly care. By using an Excel sheet, the bot stores scheduled tasks, times, and caregiver contact details. It continuously compares the current time with the scheduled times, sending timely email notifications via SMTP when the scheduled task is due. This system ensures that caregiving tasks, such as medication reminders or health check-ups, are never missed, improving efficiency and reducing the workload on caregivers

4.1. MODULES:

4.1.1. INPUT HANDLING AND INITIALIZATION

4.1.1.1. Data Input

The system allows users to input caregiving tasks, times, and caregiver details into an Excel sheet. Each task is recorded with its scheduled time and the associated caregiver's email address.

4.1.1.2. Data Validation

The bot validates the input data for correctness, ensuring that task times are in the correct format and that all required fields, including caregiver email addresses, are provided.

4.1.1.3. Initialization Process

Upon receiving the input, the system initializes the bot by loading the data and preparing it for time comparison, ensuring that all fields are set up for the monitoring process.

4.1.2. CONTENT ANALYSIS

4.1.2.1. Time Comparison

The bot continuously compares the current system time with the scheduled task times from the input data to detect if any tasks are due for completion or reminder.

4.1.2.2. Task Verification

Each task is verified to ensure that all necessary details, such as caregiver email addresses and task descriptions, are associated with the scheduled times. The bot checks the completeness of the task information before proceeding with the notifications.

4.1.2.3. Delay Mechanism

If the scheduled time hasn't been reached, the bot enters a waiting state, periodically checking the current time and re-validating the task until the time arrives for the task to be triggered.

4.1.3. RESULT MANAGEMENT

4.1.3.1. Notification Trigger

Once a scheduled task time matches the current time, the bot triggers an email notification to the caregiver’s email address with task details, ensuring timely reminders for caregiving activities.

4.1.3.2. Logging and Tracking

The bot logs the execution of each task, including the task's completion time and the status of the notification (sent or pending). This allows for tracking the system's progress and identifying any discrepancies.

4.1.3.3. Handling Pending Tasks

Tasks that are not yet due are flagged as pending, and the bot will continue to check the schedule at regular intervals until the task becomes due for notification.

4.1.4. COMPLETION AND REPORTING

4.1.4.1. Task Completion Status

Once the notification is sent or a task is completed, the bot updates the task status in the Excel sheet, marking it as "completed" or leaving it pending if it was not yet time for execution.

4.1.4.2. System Logs

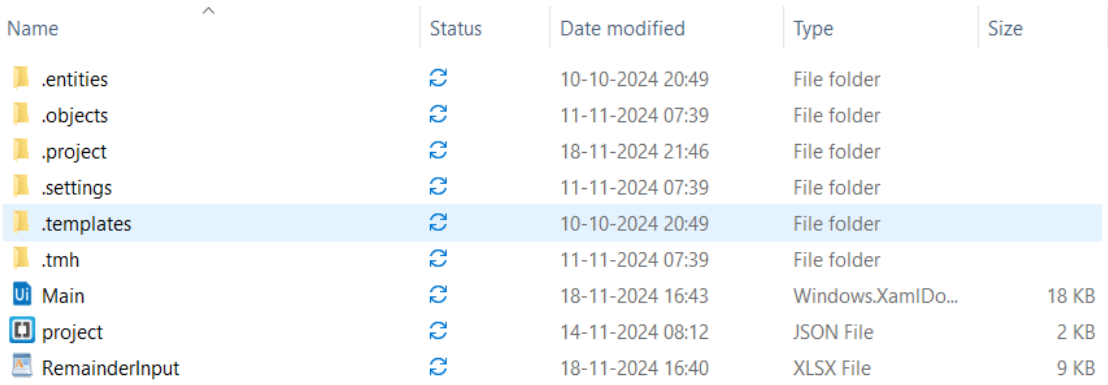
The bot maintains detailed logs of task executions, including the time of notifications, any errors, and other relevant actions, which can be reviewed for auditing purposes.

4.1.4.3. Periodic Reports

The system generates periodic reports summarizing the tasks completed, the number of reminders sent, and the overall efficiency of the bot. These reports can be sent to caregivers or administrators for review and analysis.

CHAPTER 5

OUTPUT SCREENSHOTS



Name	Status	Date modified	Type	Size
.entities		10-10-2024 20:49	File folder	
.objects		11-11-2024 07:39	File folder	
.project		18-11-2024 21:46	File folder	
.settings		11-11-2024 07:39	File folder	
.templates		10-10-2024 20:49	File folder	
.tmh		11-11-2024 07:39	File folder	
Main		18-11-2024 16:43	Windows.XamlDo...	18 KB
project		14-11-2024 08:12	JSON File	2 KB
RemainderInput		18-11-2024 16:40	XLSX File	9 KB

Fig 5.1 – Excel File Creation

The bot creates an excel file report in the main directory for the selected folder as shown in Fig 5.1

	A	B	C	D
1	Task	Remainder Time	Caregiver email	
2	Take Morning Medication	08:17AM	ashmita82201@gmail.com	
3	Attend Doctor's Appointment	09:42AM	ashmita82201@gmail.com	
4	Take afternoon Medication	08:49AM	ashmita82201@gmail.com	
5	Check Blood Pressure	09:26AM	ashmita82201@gmail.com	
6	Take Evening Medication	09:27AM	ashmita82201@gmail.com	
7	Glucose Check	09:28AM	ashmita82201@gmail.com	

Fig 5.2 – Excel file content

This fig shows the the data feeded in the excel sheet

Fig 5.3 Schedule time in Excel

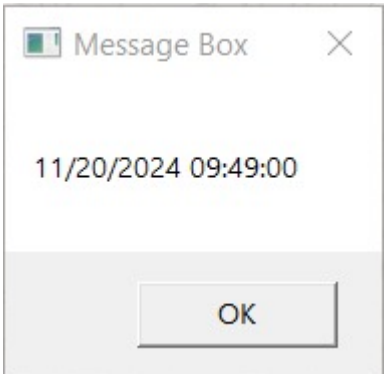


Fig 5.4 Current time

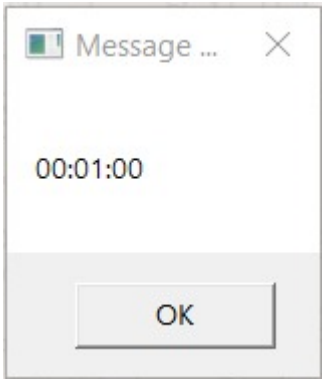


Fig 5.5 Delay period

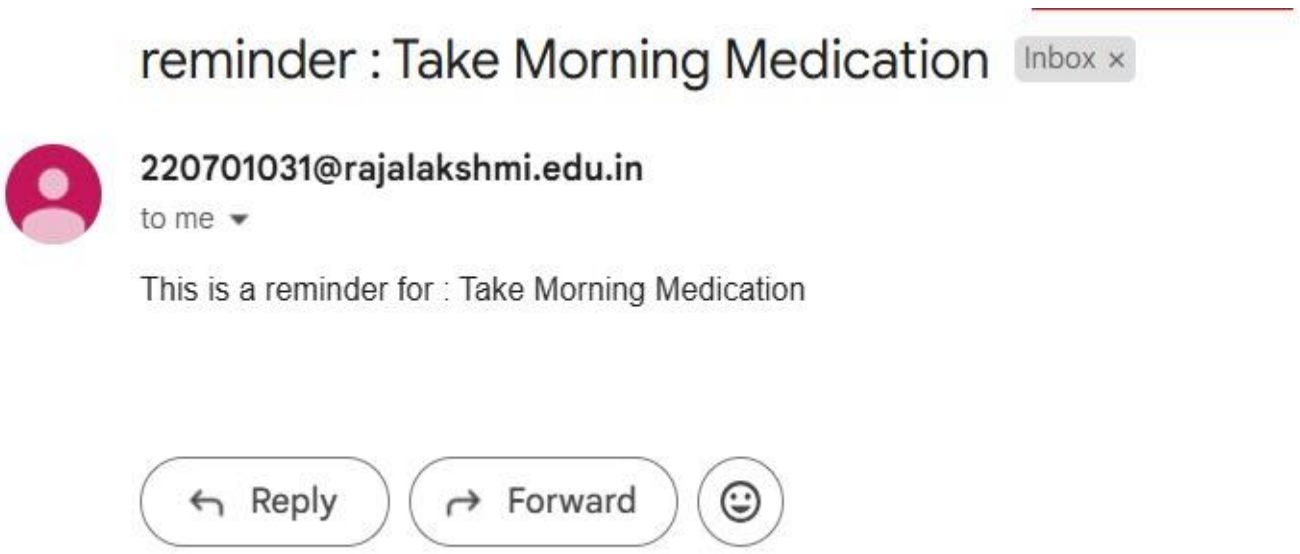


Fig 5.6 Email message

CHAPTER 6

CONCLUSION

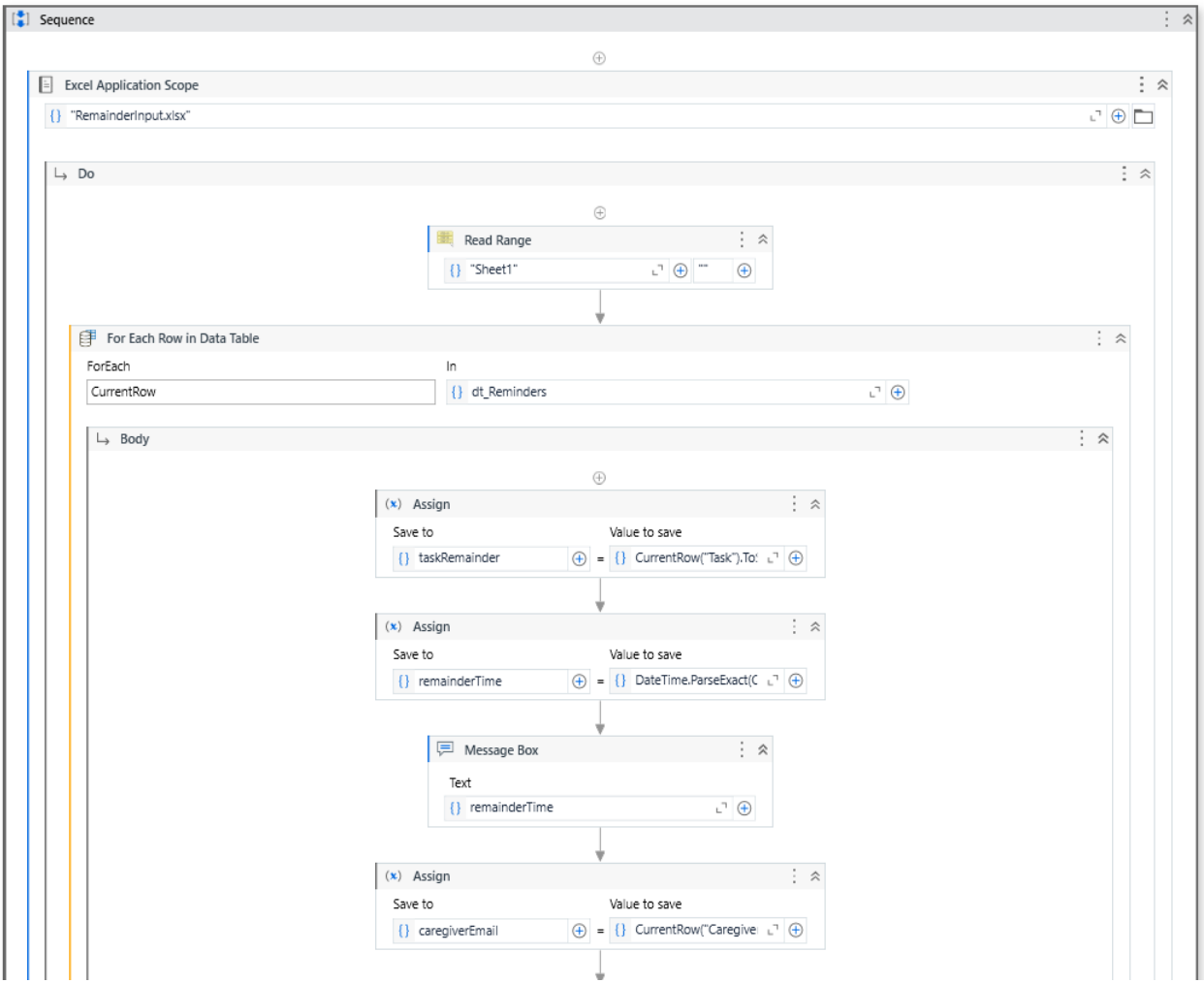
The Elderly Care Reminder Bot represents a significant step toward leveraging technology to improve the quality of life for senior citizens. By providing timely reminders for medications, appointments, and daily tasks, the bot ensures that elderly individuals can maintain their health, independence, and routine without undue stress. Its user-friendly design, voice-enabled interactions, and personalized scheduling options make it an invaluable tool for both the elderly and their caregivers.

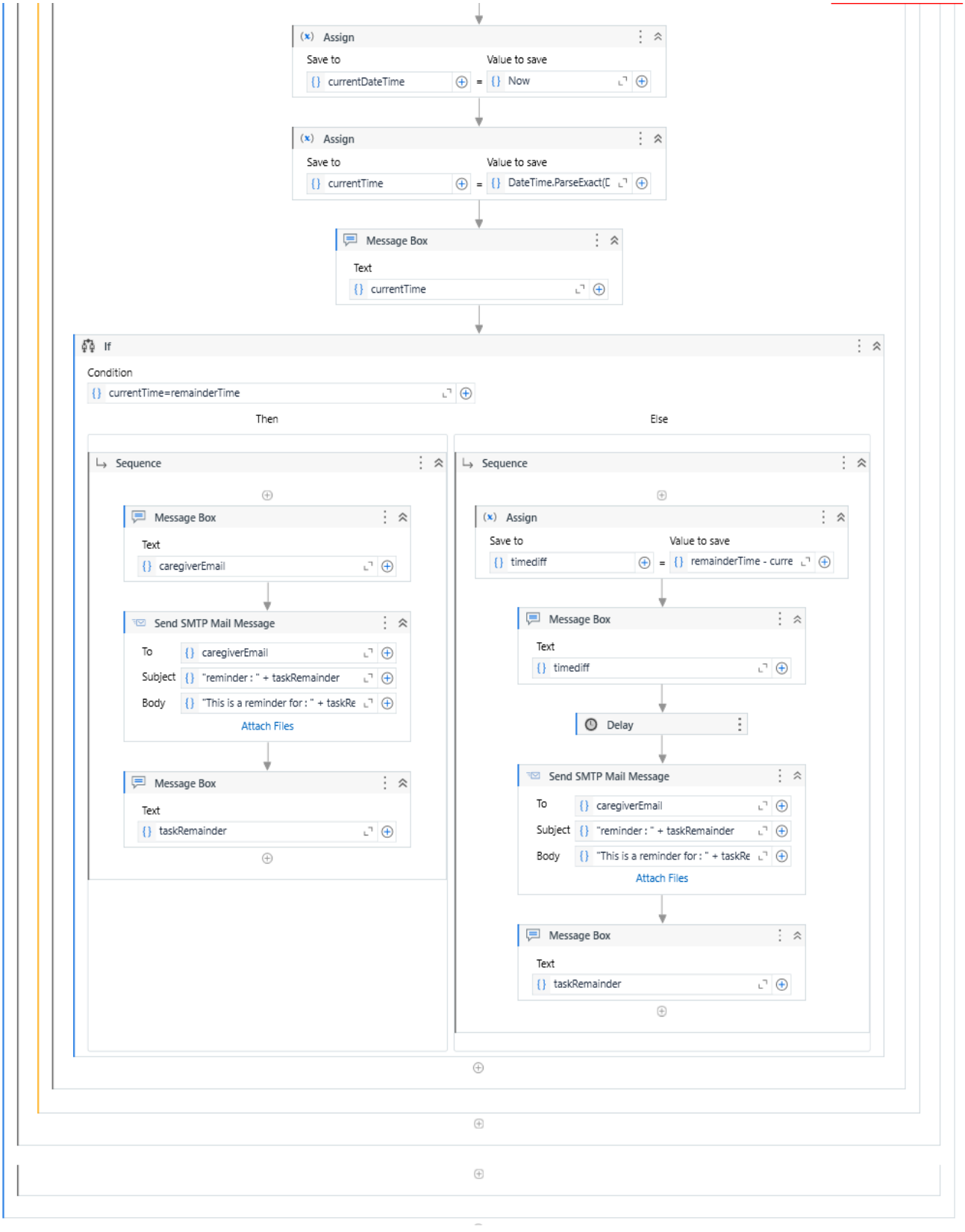
This innovation not only addresses the challenges of forgetfulness and declining memory associated with aging but also fosters a sense of security and companionship. With further advancements and integration of AI, such as predictive analytics and health monitoring, the bot has the potential to become a holistic solution for elder care management.

Ultimately, the Elderly Care Reminder Bot exemplifies how technology can be harnessed to support the aging population, empowering them to lead healthier and more fulfilling lives while bridging the gap between independence and necessary care.

APPENDIX

PROCESS WORK FLOW




Assign
Save to
currentDateTime
Value to save
Now
Assign
Save to
currentTime
Value to save
DateTime.ParseExact(
Message Box
Text
currentTime
If
Condition
currentTime=remainderTime
Then
Else
Sequence
Message Box
Text
caregiverEmail
Send SMTP Mail Message
To
caregiverEmail
Subject
"reminder : " + taskRemainder
Body
"This is a reminder for : " + taskRe
Attach Files
Message Box
Text
taskRemainder
Sequence
Assign
Save to
timediff
Value to save
remainderTime - curre
Message Box
Text
timediff
Delay
Send SMTP Mail Message
To
caregiverEmail
Subject
"reminder : " + taskRemainder
Body
"This is a reminder for : " + taskRe
Attach Files
Message Box
Text
taskRemainder

REFERENCES

- **AI and Robotics in Elder Care**

  This paper discusses the integration of AI and robotics for elderly assistance, including reminder systems.

  Link: https://link.springer.com/article/10.1007/s12369-021-00816-3

- **Care-O-bot: Mobile Robot for Elderly Support**

  Care-O-bot provides assistance with daily activities, including reminders and companionship.

  Link: https://www.care-o-bot.de/en/

- **ElliQ: AI Companion for Healthy Aging**

  ElliQ offers an AI-powered platform for medication reminders and activity tracking for seniors.

  Link: https://elliq.com/

- **IoT and AI Integration in Elderly Health Monitoring**

  This research highlights how IoT devices and AI bots provide health reminders and care.

  Link: https://arxiv.org/abs/1011.3852

- **AI Chatbots for Personalized Elderly Care**

  This article explores the role of AI chatbots in providing reminders and emotional support to the elderly.

  Link: https://scalablecare.com/blog/ai-chatbots-in-elder-care-are-they-effective/

- **Healthcare Robots for Elderly Care: A Survey**

  A detailed survey of healthcare robots designed to support the elderly, including reminder features.

  Link: https://arxiv.org/abs/2103.08814