Test Cases 2.1

Test Case 2.1A

Objective:
Verify that the NAO robot can scan the text of a physical book using its camera, recognize the text using OCR, and translate it into speech. (Successful)

Test Type: Functional	**Execution Type**: Manual

Setup:

- Ensure that the NAO robot is powered on and connected.
- Ensure that the camera is functional.
- The laptop's camera is functional and the environment is well-lit.
- The physical book or document to be scanned is placed in a well-lit environment.

Pre-Conditions:

- The camera is working
- The text in the physical book is clear and legible.
- The camera is positioned correctly to capture the text.

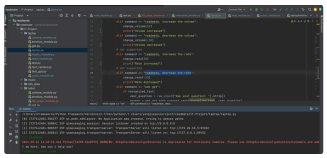
Robot (Success)	**Laptop** (Success)

Test Steps:

1. Start the NAO robot and ensure the camera is active and pointing at the text in the physical book.
2. Place text in front of the camera.
3. Nao robot reads out the text.
4. Confirm that the recognized text matches the text in the physical book.

Test Steps:

1. Type **"hi, readmate"** and place the text in front of the laptop camera to initialize the robot and begin text recognition.
2. Type **"readmate, start read"** to initiate reading
3. The recognized text is outputted to the console and the NAO robot reads the text aloud.
4. Listen to the NAO robot to ensure it reads the recognized text accurately.



initialize start reading

Expected Result:

- The NAO robot successfully captures the image, recognizes the text, and can translate the text into speech.

Time Constraint:
Minimum: 2 minutes

Maximum: 5 minutes

Test Case 2.1A - Invalid

Objective:
Verify that the NAO robot correctly handles invalid or challenging scenarios when attempting to scan text from a physical book, ensuring it does not produce incorrect or unintended speech output. (Success)

Test Type: Negative/Functional	**Execution Type**: Manual

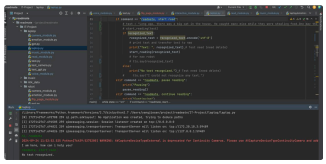
Setup:

- Ensure that the NAO robot is powered on and connected.
- Ensure that the camera is functional.
- The laptop's camera is functional and the environment is well-lit.
- The physical book or document to be scanned is placed in a well-lit environment.

Pre-Conditions:

- The camera is working
- The text in the physical book is clear and legible.
- The camera is positioned correctly to capture the text.

Laptop	**Robot**
	Test Steps: 1. Type **"hi, readmate"** and place the text in front of the laptop camera to initialize the robot and begin text recognition. 2. **Use a blank page or a page with no text**: Verify that the robot does not attempt to read and provides the feedback **"I could not recognize any text.".** 3. **Use a page with handwritten notes**: Verify that the robot either fails to recognize the text accurately and say **"I could not recognize any text.".** 4. **Use a page with overlapping or heavily marked text (e.g., text underlined with thick markers)**: Verify that the robot fails to recognize the text and say **"I could not recognize any text."** or produces garbled/unintelligible speech output. 5. **Use a page with curved or wrinkled pages:** Verify that the robot cannot accurately recognize the text due to distortion and say **"No text recognised".** 6. **Dim the lighting around the robot or create shadows over the text and initiate the scanning process**: Verify that the robot fails to recognize the text properly and say **"No text recognised".** 7. **Use a page with text in a language that the robot's OCR does not support (e.g., Arabic, Japanese, etc.):** Verify that the robot either does

	not recognize the text and say **"No text recognised".**
	

Expected Result:

- The NAO robot should only say **"No text recognised".**

Time Constraint:

- **Minimum**: 5 min
- **Maximum**: 10 min

Test view:

Test Case 2.1B

Objective:
Verify that the NAO robot can remember where it stopped reading text so that it can resume from the same position the next time it starts reading. (Successful)

Test Type: Functional	**Execution Type**: Manual

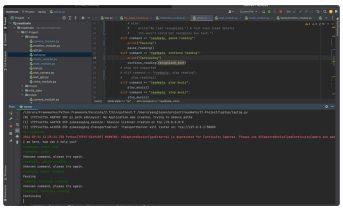
Setup:

- Ensure that the NAO robot is powered on and connected.
- The robot has access to text content, either through a scanned image using its camera or a preloaded text.

Pre-Conditions:

- The NAO robot is connected and responsive.
- The robot has started reading some text.
- The system has a mechanism to store and retrieve the last reading position.

Laptop (KIV)	**Robot** (Success)
	Test Steps: 1. Type **"hi, readmate"** and place the text in front of the laptop camera to initialize the robot and begin text recognition. 2. Type **"readmate, start read"** to initiate reading. 3. Type **“readmate, pause reading”**, ensure that the laptop replies with “pausing…” and stops reading the text. 4. Type **“readmate, continue reading”**, ensure that the laptop replies with “Continuing…” and the laptop continues to read the text from where it left off.

Expected Result:

The robot should begin reading from the position where it last stopped.

Time Constraint:

Minimum: 2 minutes

Maximum: 5 minutes

Test Case 2.1B - Invalid

Objective:
Verify that the NAO robot can handle invalid inputs when trying to stop reading text and resume from the same position the next time it starts reading. (Successful)

Test Type: Negative/Functional	**Execution Type**: Manual

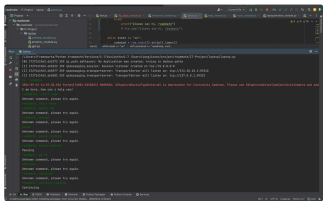
Setup:

- Ensure that the NAO robot is powered on and connected.
- The robot has access to text content, either through a scanned image using its camera or a preloaded text.

Pre-Conditions:

- The NAO robot is connected and responsive.
- The robot has started reading some text.
- The system has a mechanism to store and retrieve the last reading position.

Laptop (KIV)	**Robot** (Success)
	Test Steps: 1. Type **"hi, readmate"** and place the text in front of the laptop camera to initialize the robot and begin text recognition. 2. **Use invalid commands to pause the reading:** type “readmate, pause”/ “stop” / “enough” or any other unrecognizable commands to try to pause the reading. Ensure that reading does not continues and the robot returns **“Unknown command, please try again”** 3. Type **“readmate, stop reading”**, ensure that the laptop replies with “pausing…” and stops reading the text. 4. **Use invalid commands to continue the reading:** type “readmate, go on” / “continue” / “proceed with the reading” or any other unrecognizable commands to try to continue the

	reading. Ensure that reading does not continues and the robot returns **“Unknown command, please try again”** 5. Type **“readmate, continue reading”**, ensure that the laptop replies with “Continuing…” and the laptop continues to read the text from where it left off.
	 Invalid commands to pause and continue reading

Expected Result:

The robot should not accept any other commands except **“readmate, stop reading”** and **“readmate, continue reading”** and will reply with **“Unknown command, please try again”** for every other non-valid commands.

Time Constraint:

Minimum: 2 minutes

Maximum: 5 minutes

Test Case 2.1C (Same as 1.2B)