



System Test Plan for **Flipp: A Page Turning Device**

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The Lex-Aid Flipp will undergo intense testing procedures in order to guarantee the user a safe and reliable experience. Before the device is considered to have passed system testing, the Lex-Aid team will test each of the individual subsystems separately. The device will be designed in such a way that the designers will be able to manually trigger each of the individual subsystems. Once all subsystems pass their respective tests, then an integration test will be performed on the complete device.

Subsystem Tests

Page Lifting Arm

The page lifting arm consists of 2 main parts that are responsible for the page lifting mechanism, which will be tested individually. First is the arm that moves from one side of the book to the other, and the other is the rubber page turning wheel. Testing the page lifting arm will include the following:

- The page lifting arm will rotate to each side of the platform.
- The rubber wheel will make contact with the platform.
- The rubber wheel will rotate in both directions.
- When a book is placed on the platform, the rubber wheel will lift up a single page provided that the book is between the size of 15cm by 20cm and 22cm by 33cm closed.

Page Turning Arm

The page turning arm flips the page over to the other side of the book. Testing the page turning arm will include the following:

- The page turning arm will rotate in both directions.
- When a book is placed on the platform with a page held up by the page lifting arm, the page turning arm will flip the page to the other side provided that the book is between the size of 15cm by 20cm and 22cm by 33cm closed.

Flaps

The flaps are responsible for keeping the book open on the main platform. Testing the flaps will include the following:

- The flaps when engaged descend to at least the level of the platform.
- The flaps will be able to disengage.

- The flaps will not be able to be moved by manual force when engaged.
- The flaps will be able to slide horizontally along the surface of the platform.

Control Unit

The control unit is responsible for the user interaction portion of the device. Testing the control unit will include the following:

- The status LED will turn on when power is supplied to the unit and the device is ready for operation.
- Both the forward and backward button presses are recognized by the microcontroller.
- A button held down will only register as a single button press.

Voice Recognition

Voice recognition will allow the user to control the operation of the device through the use of voice commands. Testing the voice recognition will include the following:

- Speaking the word “forward” into the microphone is registered as a forward page flip command
- Speaking the word “backward” into the microphone is registered as a backward page flip command

Integrated Tests

One of the selected testing books is placed open on the platform and the flaps will be adjusted to fit the book. The testing books will cover a range of book sizes, paper thicknesses and cover types. The tester will then use the control unit to turn a page forward and turn another page backward. The tester then speaks the voice command “forward” and following a successful page flip speaks the voice command “backward”. If all four of these page flipping operations are successful for all testing books then the integration test is considered to be successful.