

## ECE153B Project: Page Flipper

### Member

Robin Wang

Zhiwen Wu

### Overview/Goal

The Page Flipper is a book stand that flips a page on command. A user will have their phone connected to the STM32L476RG board through Bluetooth. Every time they wave their hand from left to right/right to left in front of the phone camera, their phone sends a signal to the STM32L476RG board through UART, which connects to a motor drive through I2C. The motor drive controls three motors – two for moving the stoppers that hold the book, one for the rubber page-turner. The board will tell the motor drive how to coordinate the three motors to flip to the next page/last page. If we have time, we may also implement interaction through a joystick.



### Peripherals

Motors

Motor Drive

Phone

Bluetooth

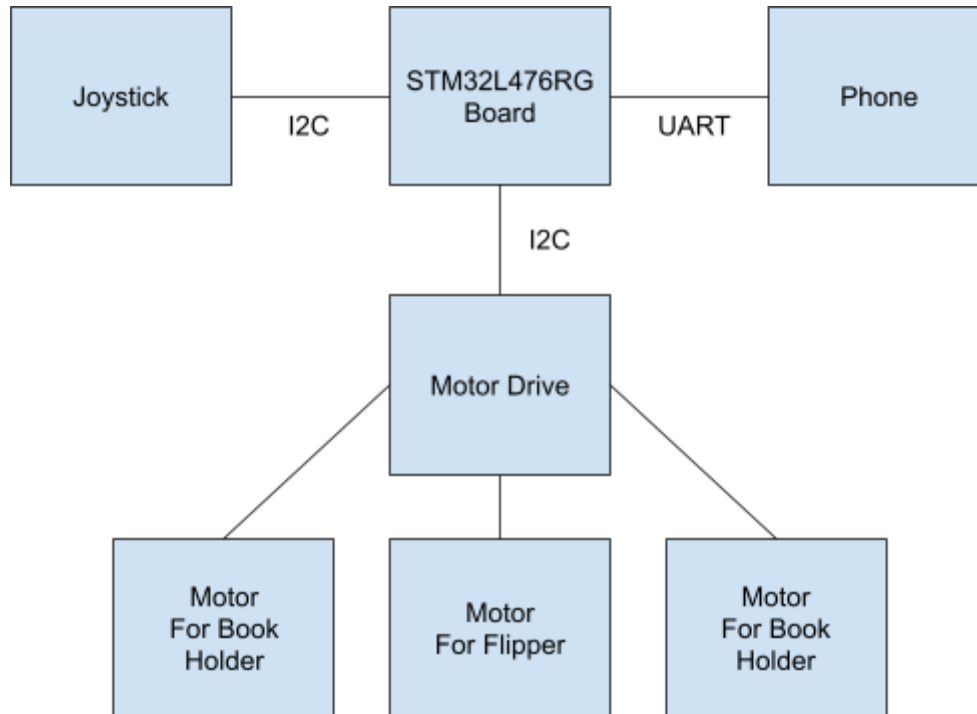
(Joystick)

### Serial interface protocols

UART (Phone, Bluetooth)

I2C (Motor Drive, Joystick)

### Block diagram



## Responsibility

Robin will work on the UART BlueTooth control and hand gesture recognition between the phone and the board.

Zhiwen will work on the motor drive software and hardware to coordinate the page flipping.

## Software structure

### *Phone-Board:*

We will use an open-source gesture recognition library to set up the hand-waving signal. Then send the signal with UART to the Board.

### *Motors-Board:*

The board, when receiving a left or right flip request interrupt, will signal to the motor drive with preset maneuvers to control the motors.

## Website

<https://sites.google.com/view/153b-robinwang-jameswu/home>