

# Irrigation - Hardware and Software Integration

Software members: Maria, Dvin, Chris, Ghazal, Kevin  
Hardware members: Ian, Ahmed, Aaron, Synee,  
Mario, Victoria, Jonathan

# SPI Success

Switching to the F4 was a major breakthrough but there were many configurations attempted before success.

Keil, Atollic, CubeMX, Arduino Studio all failed

Full duplex master-slave, multi byte communication of proper messages using Raspberry Pi and F4

Success: Using mbed online compiler and modified code from translated Chinese Google.

# Software Scheduling- User Interface

The screenshot shows a web-based irrigation control interface. The top navigation bar is blue and contains the word 'Irrigation' and a menu icon. A dark sidebar on the left lists various system components: Dashboard, Calendar, User management, Schedules, Valves, Valve groups, Requirements, Times, Change password, and Logout. The main content area is titled 'Calendar' and shows 'April 2019'. Navigation controls for 'today', previous, and next days are visible. The calendar grid shows days of the week (Sun-Sat) and dates (1-27). A blue bar at the bottom of the 24th indicates a '7:30p Schedule 1' event.

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24 7:30p Schedule 1	25	26	27

# Software Scheduling - User Interface

## Progress

- Ability to export, save as pdf, csv etc. schedule information
- Interactive calendar displaying Schedule start times
- Admin VS normal user role navigation bars
- Added menu options

# Software Scheduling - User Interface

## Goals

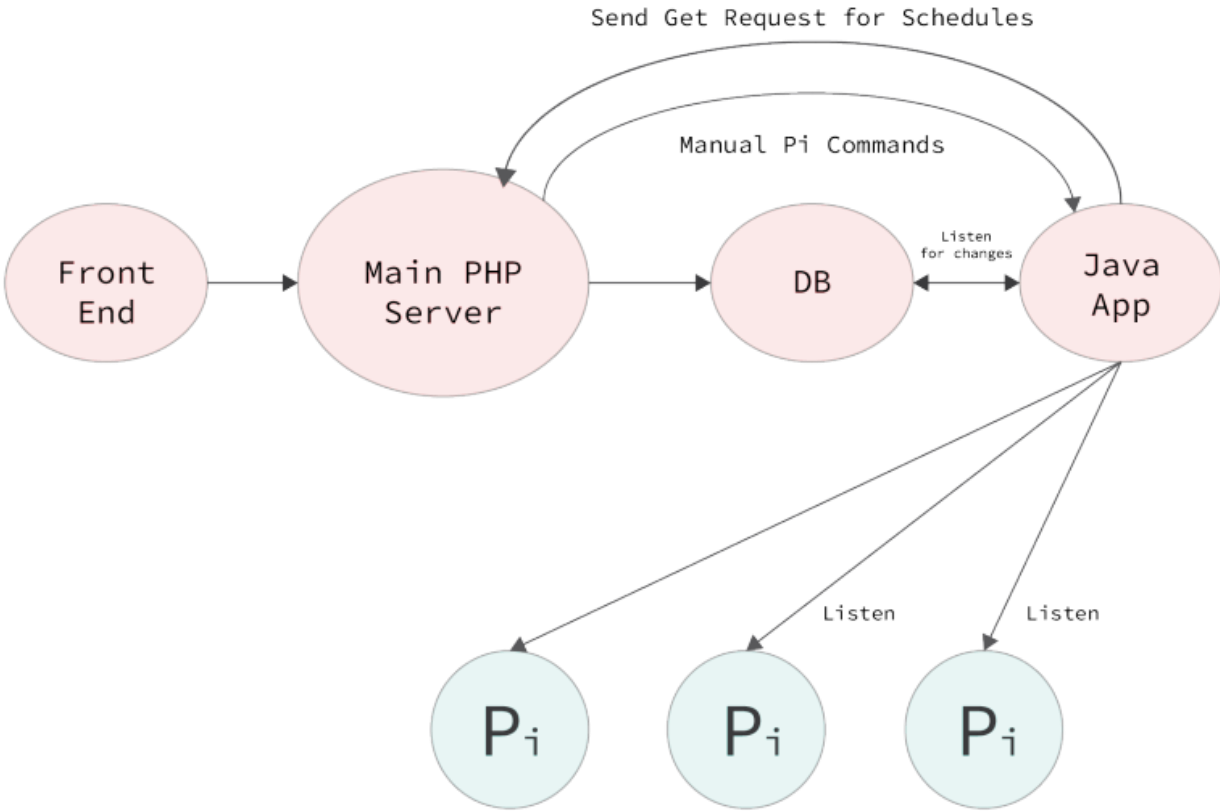
- Schedule Day view
- Condense menu options into fewer ones

# Software Scheduling - Database

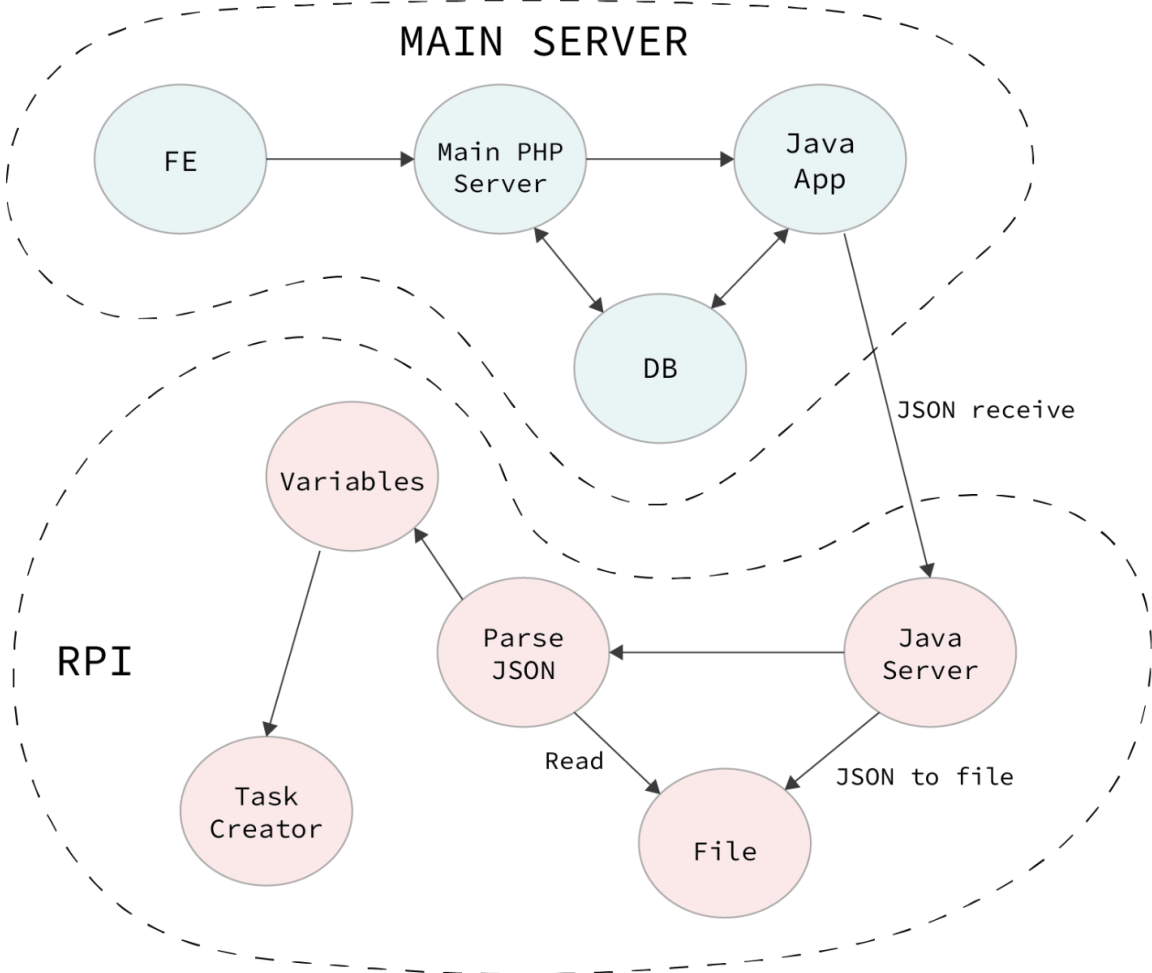
## Progress

- Java app and MySQL database connectivity via JDBC
- Ability to parse database tables into JSON objects

# Pi - Server - STM Communication



# Software Team





# Software Scheduling - Server

## Progress

- Java App and PHP server connectivity via PHP/Java Bridge
- API for receiving simplified schedule data established
- Java App can successfully make get requests to server for schedules

# Software Scheduling - Server

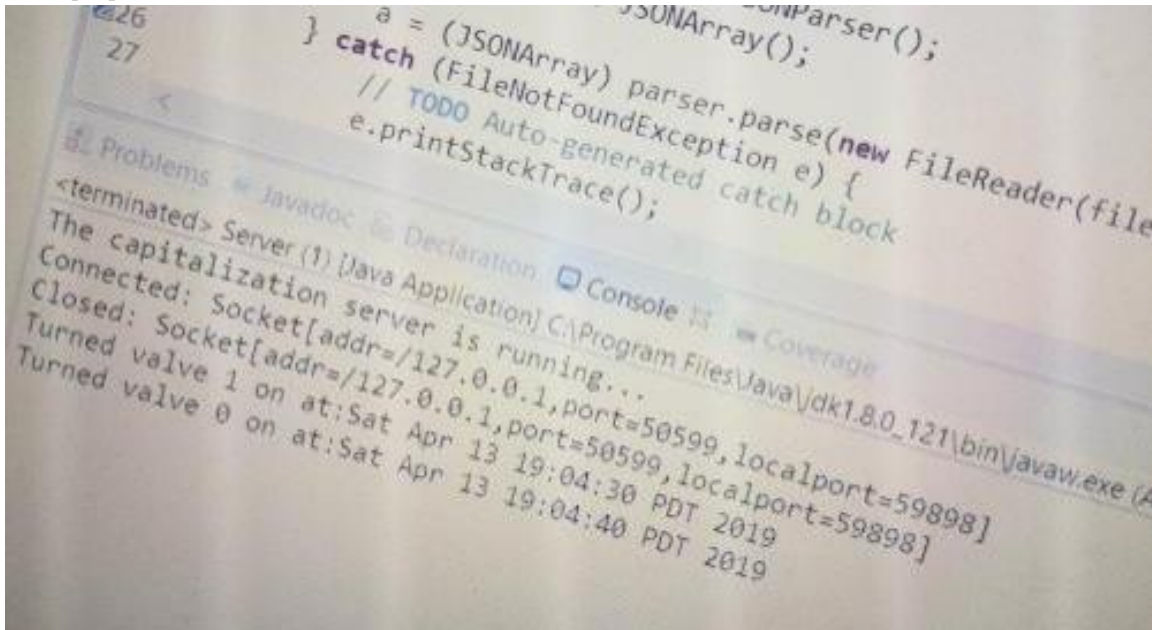
## Progress

- Java client in the main server can successfully send schedules in JSON to a Java server in same network
- JSON successfully parsed in order to get valve activations (i.e. valve num, start time, volume/duration)

# Software Scheduling - Server

## Progress

- Java app to create Tasks based on schedule data



The image shows a screenshot of an IDE with two main components: a code editor and a console window. The code editor displays the following Java code:

```
26     a = (JSONArray) parser.parse(new FileReader(file));
27     } catch (FileNotFoundException e) {
    // TODO Auto-generated catch block
    e.printStackTrace();
}
```

The console window shows the following output:

```
<terminated> Server (1) [Java Application] C:\Program Files\Java\jdk1.8.0_121\bin\javaw.exe (A
The capitalization server is running...
Connected: Socket[addr=/127.0.0.1,port=50599,localport=59898]
Closed: Socket[addr=/127.0.0.1,port=50599,localport=59898]
Turned valve 1 on at:Sat Apr 13 19:04:30 PDT 2019
Turned valve 0 on at:Sat Apr 13 19:04:40 PDT 2019
```

# Software Scheduling - Server

## Goals

- Convert Java JSON parser and Task creator to C
- Modify JSON schedule structure