

Function Specification

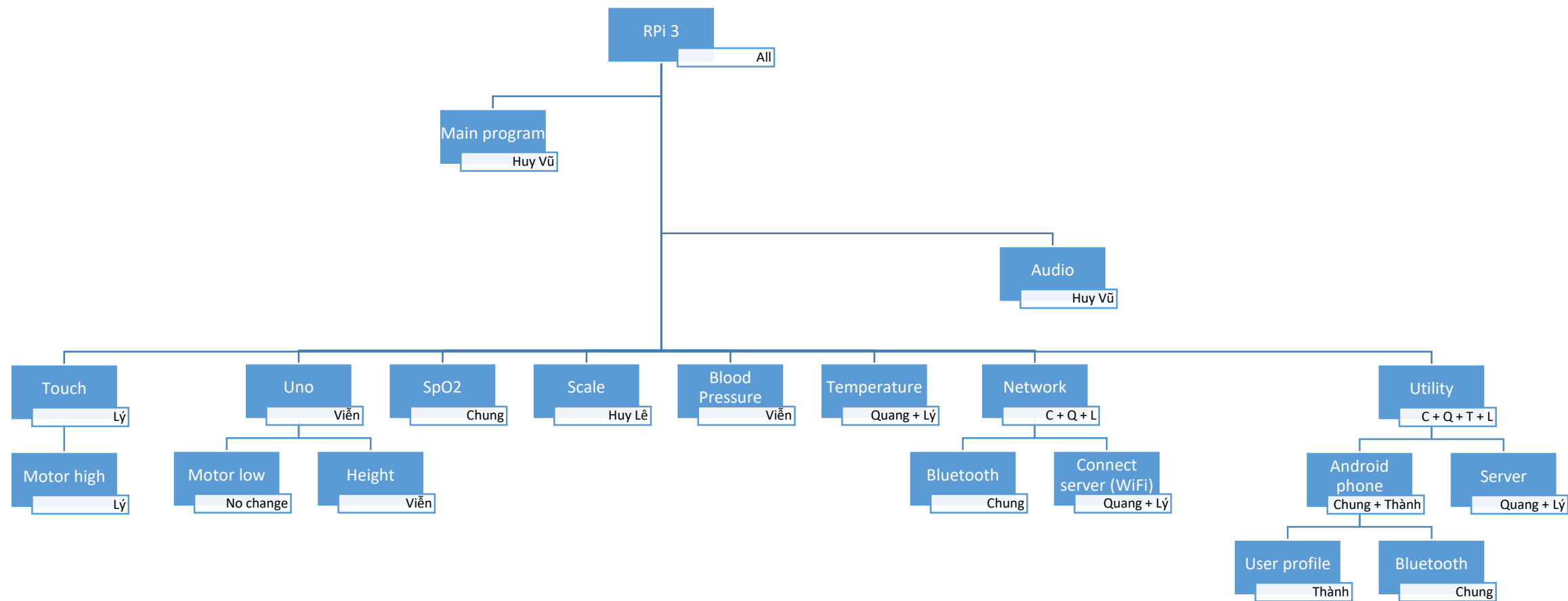
This file includes:

1. General rules for coding
2. Defines main flow
3. Defines desired features, desired output for each module
4. Module code

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Design & Assigned Task



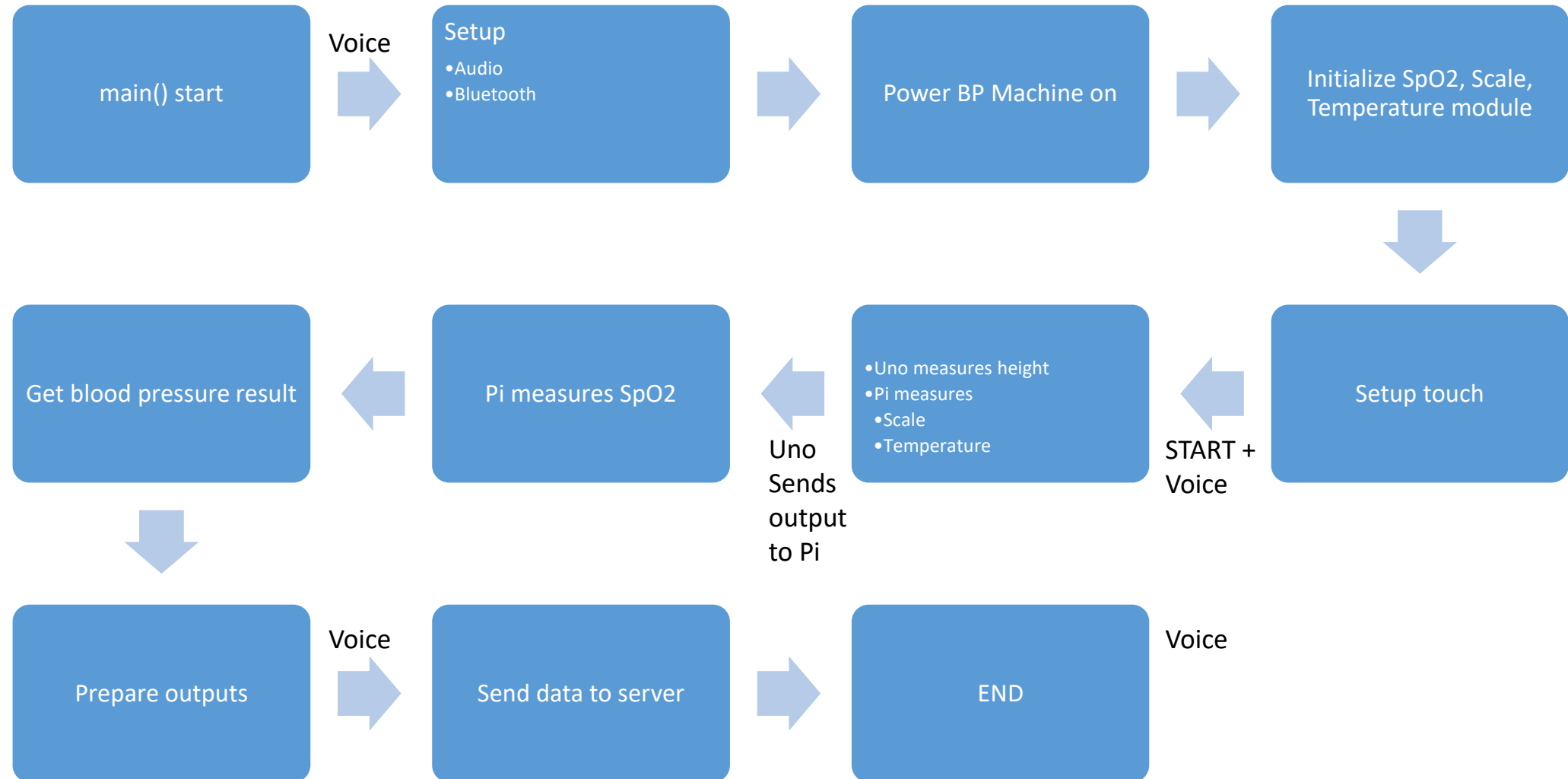
General rules

- Function name:
 - `<module-code>_<functionname>(arg1, arg2...)`
 - The name should be meaningful
 - The module name is lower case
 - Ex: `spo2_init()`; `scale_calibration()`; ...
- Variable name:
 - Meaningful
- Remember to comment in source code

General rules

- Main program will be written in Python, reasons:
 - Add new module easily
 - Raspbian and most unix distros support python natively
 - Merge whole project easily
- Other modules can be written in any language, the output of each module is an executable file and some file used for communication
- inter-process communication: via files

Main flow



Main

- Huy Vu
- Description:
 - Initialize Pi
 - Call modules according to system flow
 - Handling inter-process communication
- Output:
 - Program: main.py, main_class.py (header file)

Audio

- Huy Vu >> This module will be implemented in python
- Description:
 - Input: some mp3 files
 - Initialize audio, then generate audio_finish
 - Play mp3 according to current step.
- Output:
 - Program: audio
 - File: audio_finish

Bluetooth

- Chung
- Description:
 - Pair Pi and the connecting Android phone
 - Get android phone mac address, store in bluetooth_result
 - When finish, generate bluetooth_finish
- Output

Touch

- Lý
- Description:
 - Initialize and control the hand-placing platform
 - After initialize, generate touch_finish
- Output:
 - Program: touch
 - File: touch_finish

Uno

- Viễn
- Description:
 - Initialize then wait for a file name touch_finish (uno_start), then send START signal to Uno.
 - Uno will drive the motor, measure height, then send back to Pi
 - Pi store that result in a file name height_result, generate a file name uno_finish
- Output:
 - Program: uno
 - File: height_result, uno_finish

Scale

- Huy Le
- Description:
 - Initialize then wait for a file name uno_finish
 - Measure weight
 - Store result in scale_result, generate scale_finish
- Output:
 - Program: scale
 - File: scale_result, scale_finish

Temperature

- Description:
 - Initialize then wait for a file name uno_finish
 - Measure temperature
 - Store result in temp_result, generate temp_finish
- Output:
 - Program: temp
 - File: temp_result, temp_finish

SpO2

- Chung
- Description:
 - Initialize then wait for a file name scale_finish AND temp_finish
 - Measure the SpO2
 - Store that result in file name spo2_result, generate spo2_finish
- Output:
 - Program: spo2
 - File: spo2_result, spo2_finish

Blood pressure

- Viễn
- Description:
 - Has two program: bpressure_poweron, bpressure
 - bpressure_poweron will power on the bpressure machine, initialize the auto-mechanical
 - after that, generate file bpressure_poweron_finish
 - bpressure will measure when spo2_finish exists
 - Store result in bpressure_result, generate bpressure_finish
- Output:
 - Program: bpressure_poweron, bpressure
 - Output: bpressure_result, bpressure_finish

Pi Connect server via WiFi

- Quang + Lý
- Description:
 - Send data to server when wifi_start exists
 - Generate file wifi_finish
- Output:
 - Program: wifi
 - File: wifi_finish

Utilities

Server

- Handle result from Pi
- Store user data (ID, name, mac addr...)
- Store user result (height, weight, spo2, blood pressure, temperature)
- Quang + Ly

Android app

- Bluetooth
 - See above Bluetooth slide
 - Chung
- User profile
 - Ask mentor & server team for more information 😊)
 - Thành

Module code (for implementing)

Module	Code
Audio	audio
Bluetooth	bluetooth
Blood pressure	bpressure
Scale	scale
SpO2	spo2
Temperature	temp
Touch	touch
Uno	uno
Connect server (wifi)	wifi

Summary

Member	Task
Huy Vũ	Main program, Audio
Huy Lê	Scale
Chung	SpO2, Bluetooth
Thành	User profile
Viễn	Blood Pressure, Uno
Lý	Server, Connect server via wifi (Pi), temperature, touch
Quang	Server, Connect server via wifi (Pi), temperature, touch

This file can be updated by any member's request.
This is not final version.

END

All corrections, suggestions, contributions are welcome