Function Specification

This file includes:

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

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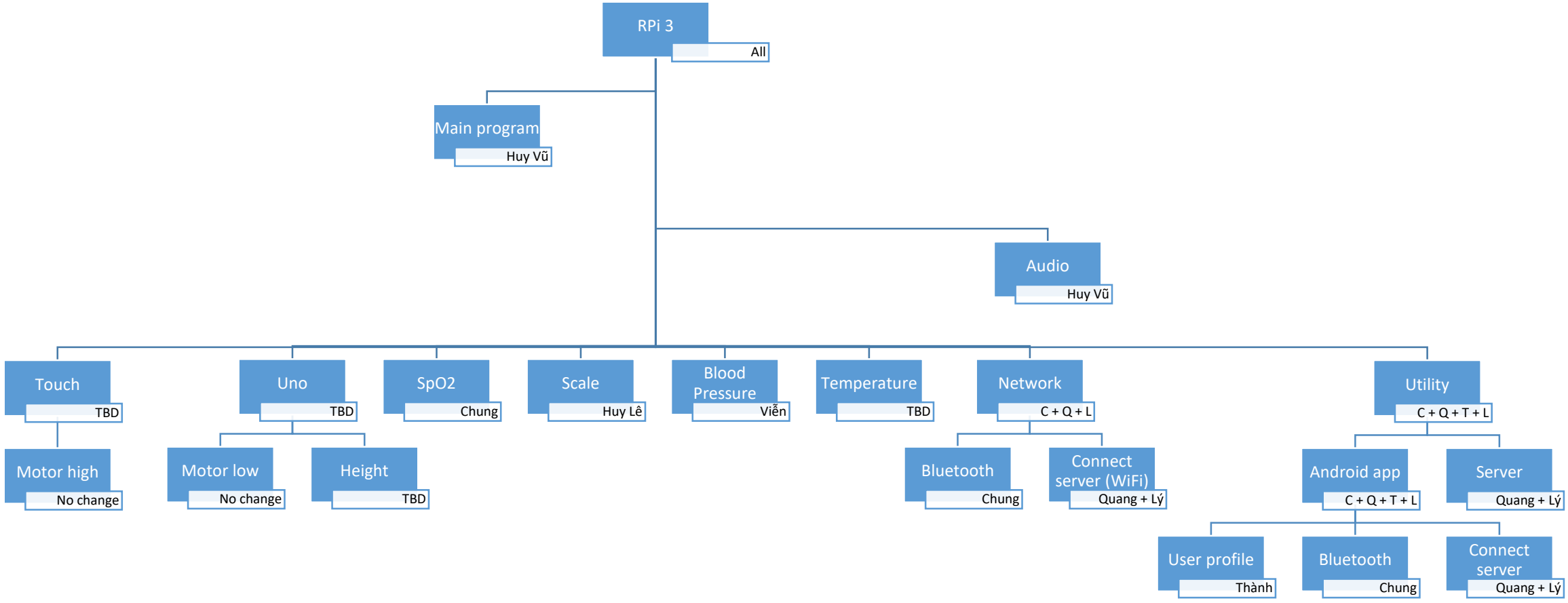
Design & Assigned Task



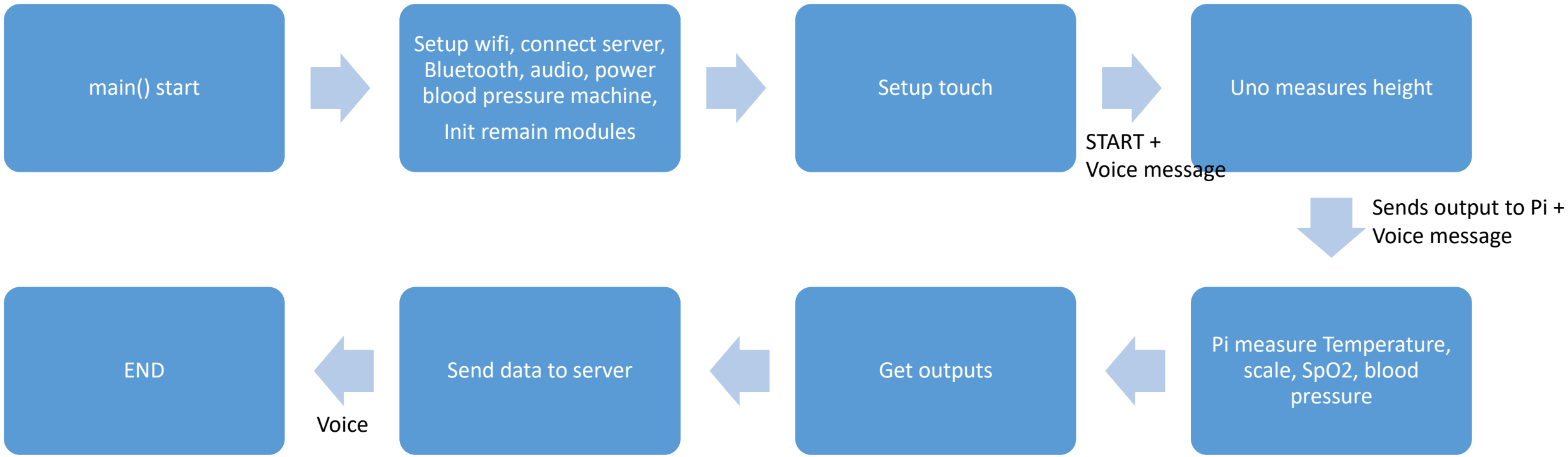
General rules

- Function name:
  - module_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

Main flow

- 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 languages, the output of each module is an executable file
- main() will call processes in desired order, OS will manage these processes.
- inter-process communication: via files

Main flow


main() start
Setup wifi, connect server, Bluetooth, audio, power blood pressure machine,
Init remain modules
Setup touch
START +
Voice message
Uno measures height
Sends output to Pi +
Voice message
Pi measure Temperature, scale, SpO2, blood pressure
Get outputs
Send data to server
Voice
END

Main

- Input:
  - None
- Output:
  - Init Pi, connect wifi
  - Call modules
  - Handling inter-process communication (via files)
- Huy Vu + Huy Le

Uno

- Input:
  - Pi-side: wait for a file name touch_finish
  - Uno-side: Get start signal from Pi
- Output:
  - Send height to Pi, store height (string) in a file name height_result
- TBD

SpO2

- Input:
  - wait for a file name spo2_start
- Output:
  - Put user’s SpO2 data (string) in file name spo2_result
- Chung

Scale

- Input:
  - wait for a file name scale_start
- Output:
  - Put user’s weight (string) in file name scale_result
- Huy Le

Blood pressure

- Input:
  - wait for a file name bp_start
- Output:
  - Put user’s blood pressure (string) in file name bp_result
- Vien

Temperature

- Input:
  - wait for a file name temp_start
- Output:
  - Put user’s temperature (string) in file name temp_result
- TBD

Audio

- Input:
  - Pre-record voice message
  - Wait for touch_finish
  - Wait for result files
- Output:
  - Output the message to speaker
- Huy Vu >> This module will be implemented in python

Bluetooth

- Input:
  - none
- Output:
  - Pair the system and user’s phone
- Chung

Pi Connect server via WiFi

- Input:
  - Wait for files: height_result, spo2_result, scale_result, bp_result, temp_result
- Output:
  - Send those result to server
  - Create a file name wifi_finish
- Quang + Ly

Touch

- Input:
  - None
- Output:
  - Create a file name touch_finish
- TBD

Utilities

Server

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

Android app

- Bluetooth
  - See above Bluetooth slide
  - Chung
- User profile
  - Ask mentor for more information ☺)
  - Thành
- Connect with server to show result on android phone
  - Quang + Ly

Summary

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

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

END

All corrections, suggestions, contributions are welcome