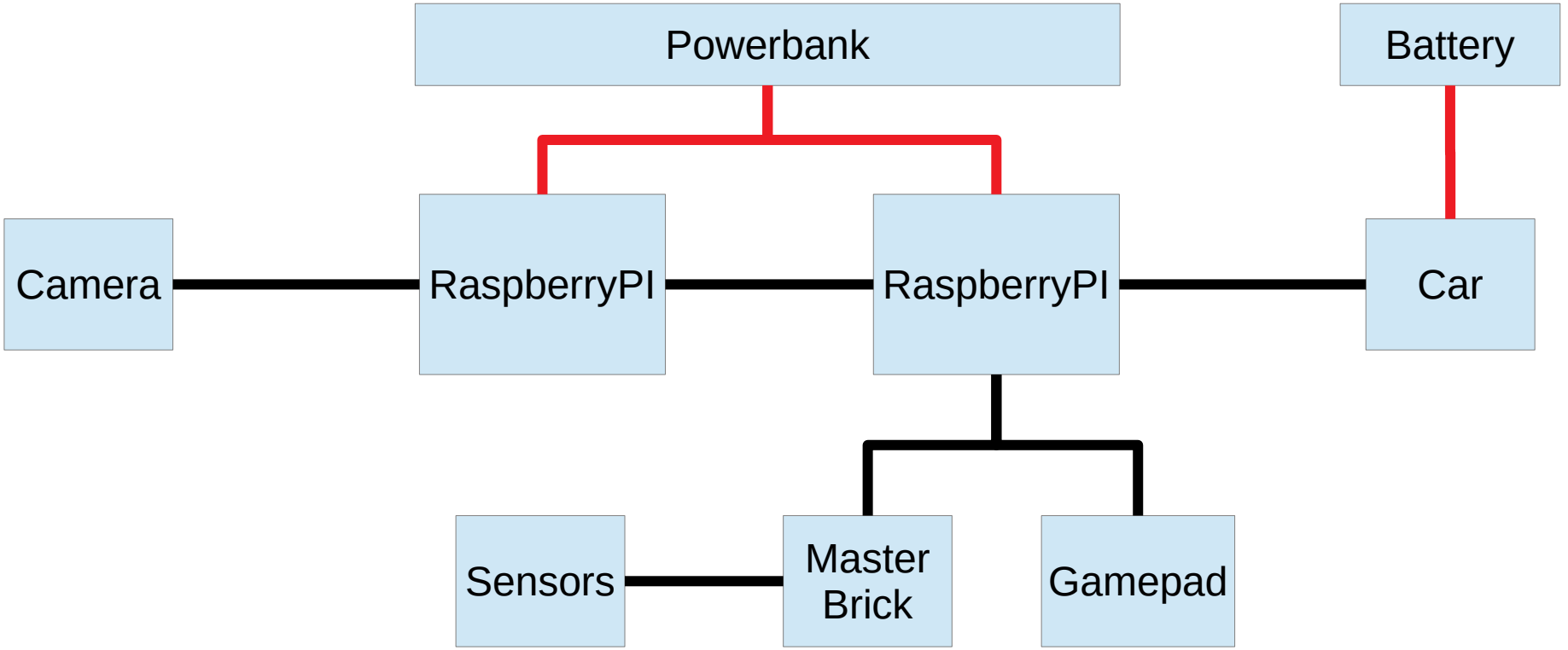
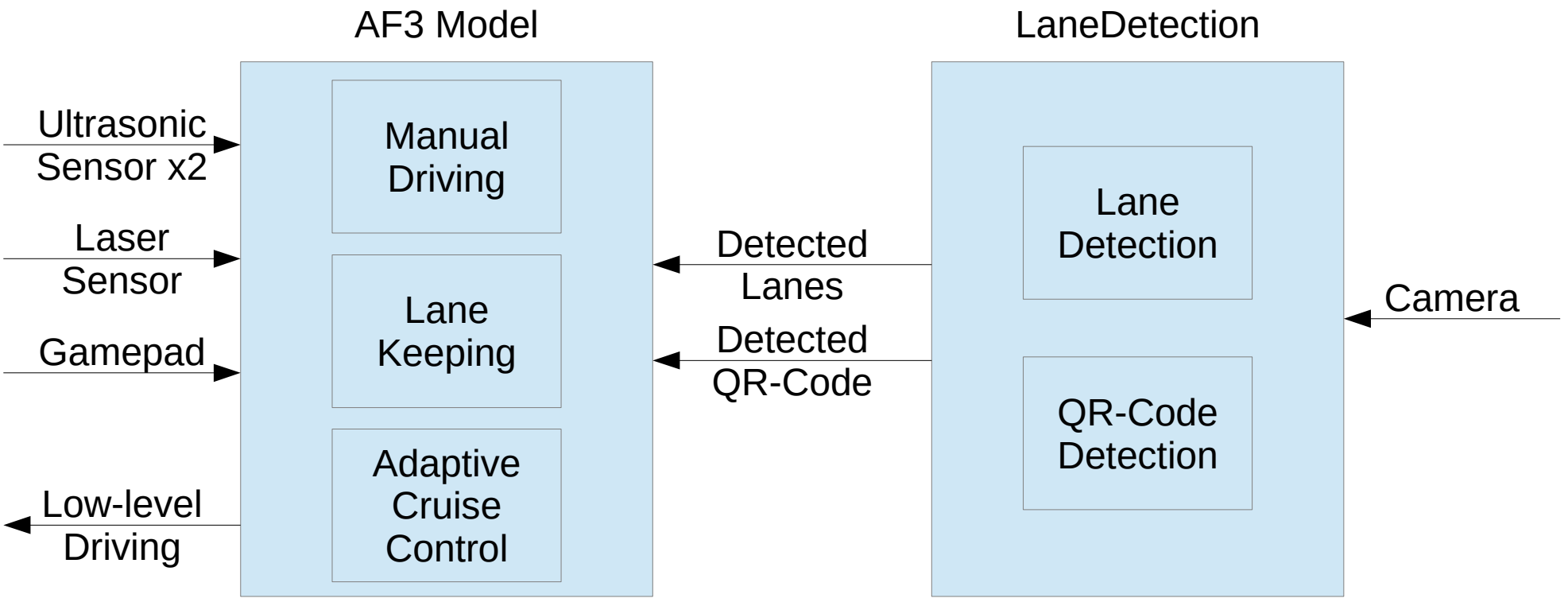
Hardware overview



Software overview



How to deploy

Before you start:

- Start and connect to the router (ssid: ‘FF1RoadNet’, pw: ‘fortisspi’)
- Connect both RaspberryPIs to the Powerbank and make sure it’s charged
- Make sure you know the IP of the RaspberryPIs (if you don’t, access the router and look it up, IP: ‘192.168.1.1’, pw: ‘admin’)

How to deploy – AF3 Model

Deploy:

- Generate code in AF3 (Allocations → Rightclick Hardware → Run Bare Metal Generator)
- Move the ‘RaspberryPI’ folder into the ‘scripts’ folder in the repository and run *$./removeRGB* (most RaspberryPIs are missing the required library)
- Copy the ‘RaspberryPI’ folder to the PI (pw: ‘fortisspi’; if there is a previous model in your chosen directory, delete its code first) → ex. *$ scp -r RaspberryPI/* pi@192.168.1.101:~/SS19/*
- Connect to the RaspberryPI → ex. *$ ssh pi@192.168.1.101*
- Go to the directory where you put the code → ex. *$ cd SS19*
- Execute *$ ./makeComplete*

Note: the ‘*deploy_<color>.sh’* scripts in the repository do most of the above (only tested with linux)

How to use – AF3 Model

Before you start:

- Make sure the Powerbank and Battery are connected
- Turn the gamepad on

Run:

- Connect to the RaspberryPI →ex. *$ ssh pi@192.168.1.101*
- Go to the directory of the model → ex. *$ cd SS19*
- Execute *$ ./build/RaspberryPI.run*

  Note: The LaneDetection is in the autostart of the LaneDetection-PI, turning it on is enough

When you’re done:

- Disconnect Powerbank **and** Battery

How to deploy/use - LaneDetection

Deploy:

- Copy the ‘LaneDetection’ folder to the PI →ex. *$ scp -r LaneDetection/ pi@192.168.1.147:~/*
- *Connect to the RaspberryPI →ex. $ ssh pi@192.168.1.147*
- Go to the directory where you put the code → ex. *$ cd LaneDetection*
- Execute cmake → ex. *$ cmake .* ← the dot is important
- Run make → ex. *$ make*
- Start the LaneDetection → ex. *$ ./LaneDetection -c 0 -o 0*

  Note: The LaneDetection takes 2 parameters: *-c <cameraID>* which specifies the camera to use; and -o <showOption> which specifies if the result should be visualized (0 for not at all, 3 for view in browser)
- Note: the LaneDetection is in the autostart of the RasperryPI, if you want to stop the running instance: *$ pkill LaneDetection*; if you want to edit the autostart: *$ crontab -e*

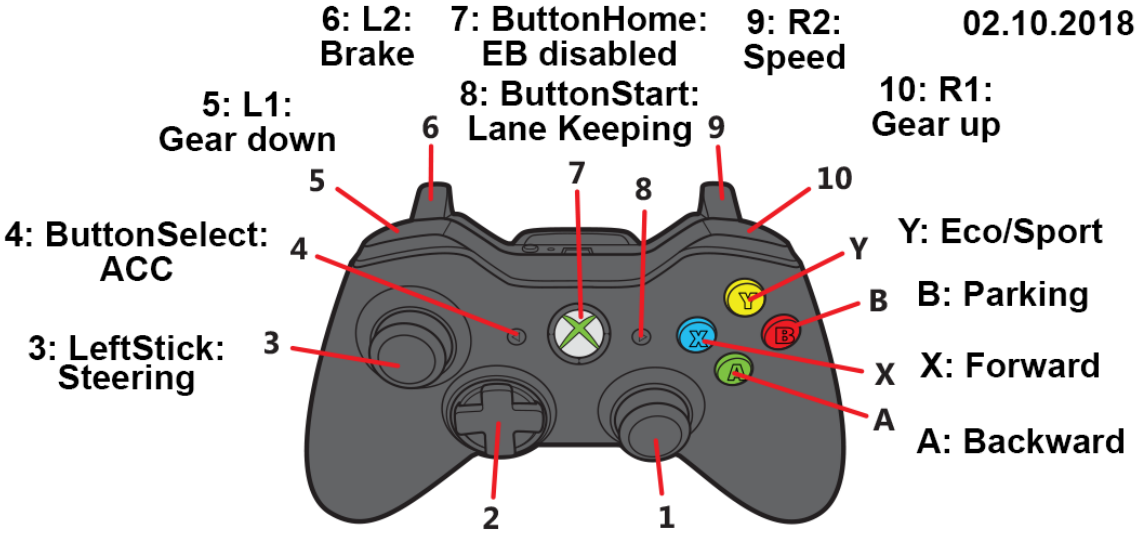
Common problems

- *File not found: /dev/vesc* when starting the model → Battery empty, replace
- Can’t connect to the RaspberryPI → The Pis take a while to connect to the router, wait a bit; if that doesn’t work, turn them off and on again
- Gamepad stops responding → turn it off and on again

Rover IPs

	Orange	White	Blue	Black
AF3-Model	192.168.1.112	192.168.1.113	192.168.1.129	192.168.1.101 or 192.168.1.102
LaneDetection	192.168.1.108	192.168.1.131	192.168.1.139	192.168.1.147

Button mappings



Useful Commands

- ***$ man <command>***
- *$ ssh user@hostname*
- *$ scp [-r] <src> user@hostname:<dst>*
- *$ ssh-copy-id user@hostname*
- *$ cd <dir>*
- *$ ls [-l] [<dir>]*
- *$ mv <src> <dst>*
- *$ cp [-r] <src> <dst>*