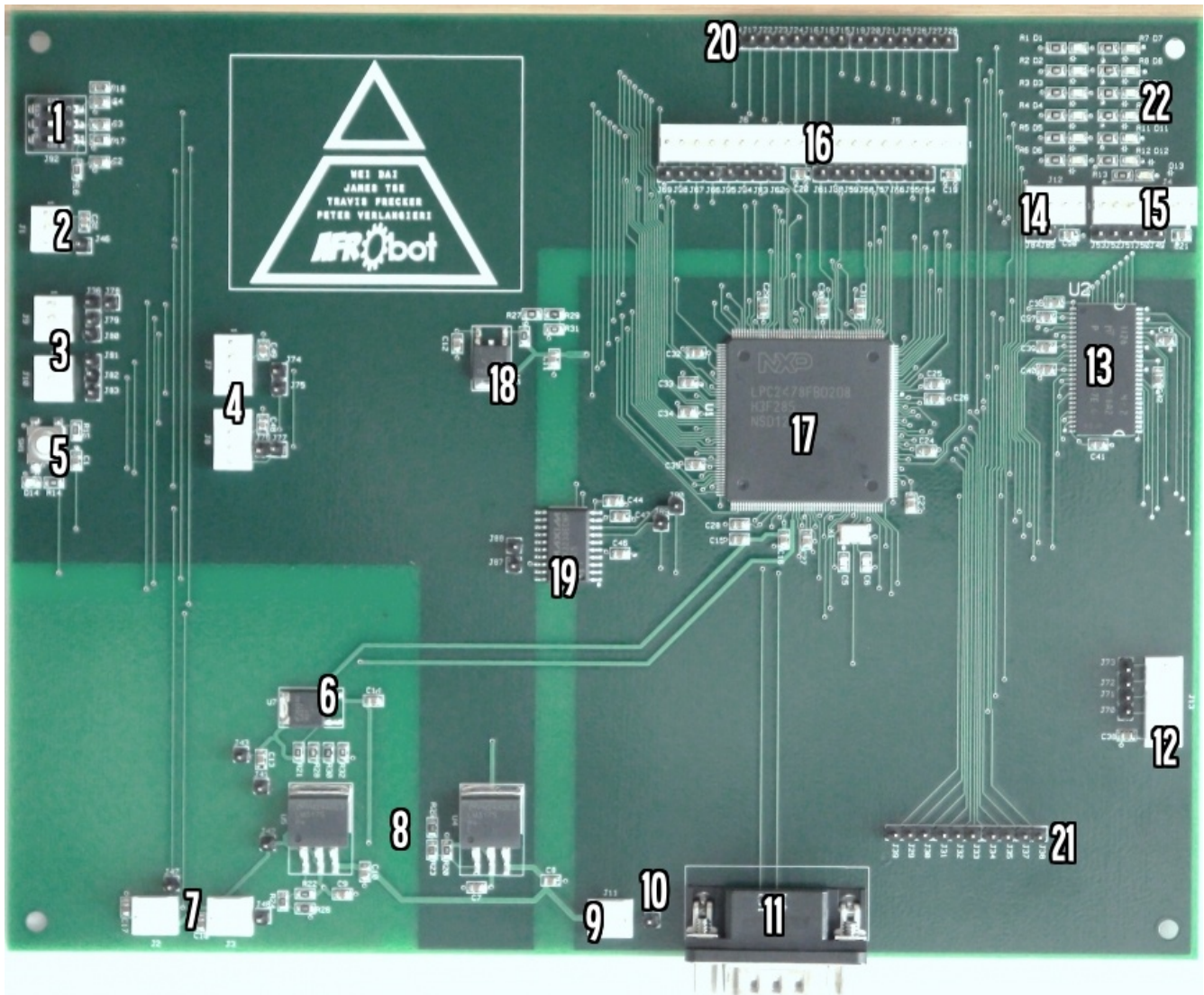


# AFRObot Technical Manual

## PCB LAYOUT



1. Dip switch	8. 5V voltage regulators	15. Digital compass
2. Servo	9. Battery connector	16. Reflectance arrays
3. Motor controllers	10. Ground pin	17. Processor
4. Encoders	11. DB9 RS232	18. 3.3V voltage regulator
5. Reset switch	12. Sonar	19. Level shifter
6. 3.3V voltage regulator	13. SDRAM	20. GPIOs
7. IR sensors	14. Camera	21. GPIOs
		22. Test leds

# DESCRIPTIONS

## 1. Dip switch

Connected to GPIOs for potential use later on (pins 2 and 3). Pin 1 of the dip switch corresponds to pin 110 of the processor, and is the bootloader pin.

## 2. Servo

Connector for the servo, used for lifting and lowering the writing utensil when tracing lines.

## 3. Motor controllers

Two connectors for the two motor controllers.

## 4. Encoders

Two connectors for the two encoders.

## 5. Reset Switch

The reset for the processor. Active when the green LED next to the switch is on (active low).

## 6. 3.3V voltage regulator

Connector for the 3.3V analog voltage regulator.

## 7. IR sensors

Two connectors for the two IR sensors.

## 8. 5V voltage regulators

Two connectors for the 5V voltage regulators. The left one is analog.

## 9. Battery connector

Connector for the battery.

*NOTE: Only pin 1 works, which is the power pin. The other 2 pins were mistakenly left unconnected, but there is a ground pin (10) immediately to the right of the connector which can be rigged to the connector.*

## 10. Ground pin

Ground access pin.

## 11. DB9 RS232

Connector for the DB9.

*NOTE: The DB9 connector pins are mistakenly reversed. Essentially pin 1 is pin 5, pin 2 is pin 4, pin 3 is pin 3, pin 4 is pin 2, and pin 5 is pin 1 on the top row of the connector. Imagine the top row flipped backwards.*

## 12. Sonar

Connector for the sonar.

## 13. SDRAM

SDRAM module.

*NOTE: Lots of routes are under this module, so it may run hot.*

**14. Camera**

Connector for the camera.

**15. Digital compass**

Connector for the digital compass.

**16. Reflectance arrays**

Two connectors for the reflectance arrays.

**17. Processor**

LPC2478 Processor module.

**18. 3.3V voltage regulator**

Connector for the 3.3V voltage regulator.

**19. Level shifter**

The level shifter module.

**20. GPIOs**

GPIO pins from the processor for future testing and/or unforeseen complications.

**21. GPIOs**

GPIO pins from the processor for future testing and/or unforeseen complications.

**22. Test LEDs**

Test LEDs which are connected to corresponding GPIOs for future testing and debugging.