Functional Farming with Nerves

Who Am I?

What is FarmBot?

What is FarmBot?

FarmBot JR Status

What is FarmBot?

FarmBot is Open Source

FarmBot ❤ Open Source

E-LOCK

E-UNLOCK

Demo

UP

ZUP

LF

DN

RT

ZDN

HM

Test LED

Lighting

Water

Vacuum

FarmBot

FarmBot JR Status

FarmBot ❤ Open Source

E-LOCK

E-UNLOCK

Demo

UP

ZUP

LF

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ZDN

HM

Test LED

Lighting

Water

Vacuum

FarmBot

FarmBot JR Status

FarmBot RAILS

E-LOCK

E-UNLOCK

Demo

UP

ZUP

LF

DN

RT

ZDN

HM

Test LED

Lighting

Water

Vacuum

RAILS

FarmBot JR Status

FarmBot WEBPACK

E-LOCK

E-UNLOCK

Demo

UP

ZUP

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RT

ZDN

HM

Test LED

Lighting

Water

Vacuum

FarmBot JR Status

FarmBot ❤ REACT

E-LOCK

E-UNLOCK

Demo

UP

ZUP

LF

DN

RT

ZDN

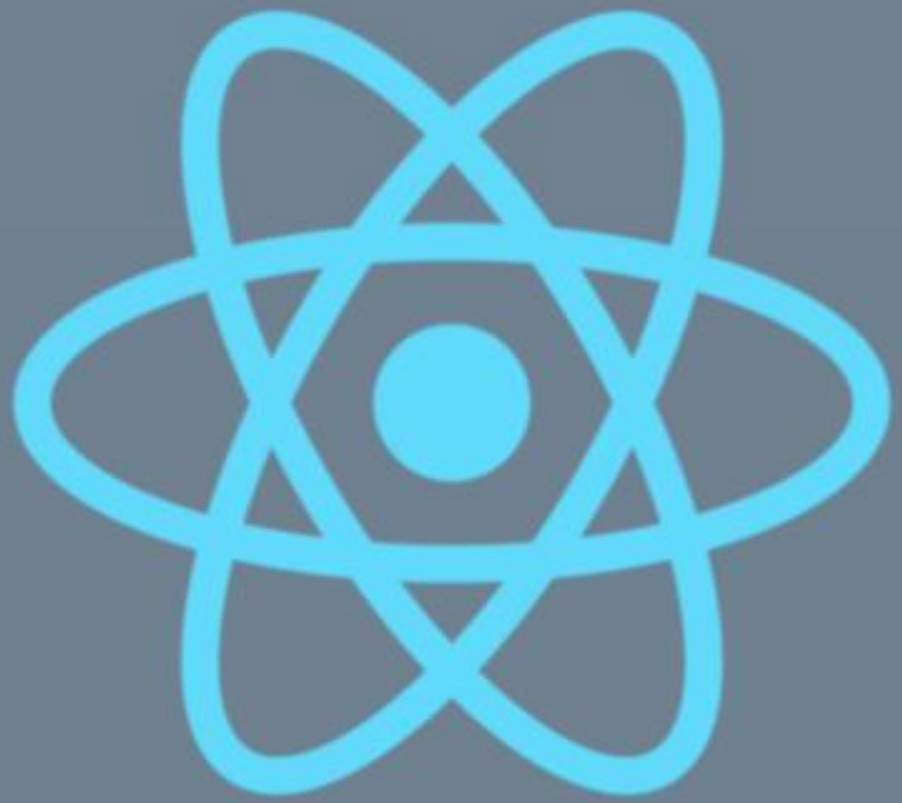
HM

Test LED

Lighting

Water

Vacuum



FarmBot JR Status

FarmBot ❤ TYPESCRIPT

E-LOCK

E-UNLOCK

Demo

UP

ZUP

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Test LED

Lighting

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Vacuum

FarmBot JR Status

FarmBot ❤ RABBITMQ

E-LOCK

E-UNLOCK

Demo

UP

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Test LED

Lighting

Water

Vacuum

RabbitMQ

FarmBot JR Status

FarmBot ARDUINO

E-LOCK

E-UNLOCK

Demo

UP

ZUP

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ZDN

HM

Test LED

Lighting

Water

Vacuum

FarmBot JR Status

FarmBot ELIXIR

E-LOCK

E-UNLOCK

Demo

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ZUP

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Test LED

Lighting

Water

Vacuum

FarmBot JR Status

FarmBot NERVES

E-LOCK

E-UNLOCK

Demo

UP

ZUP

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Test LED

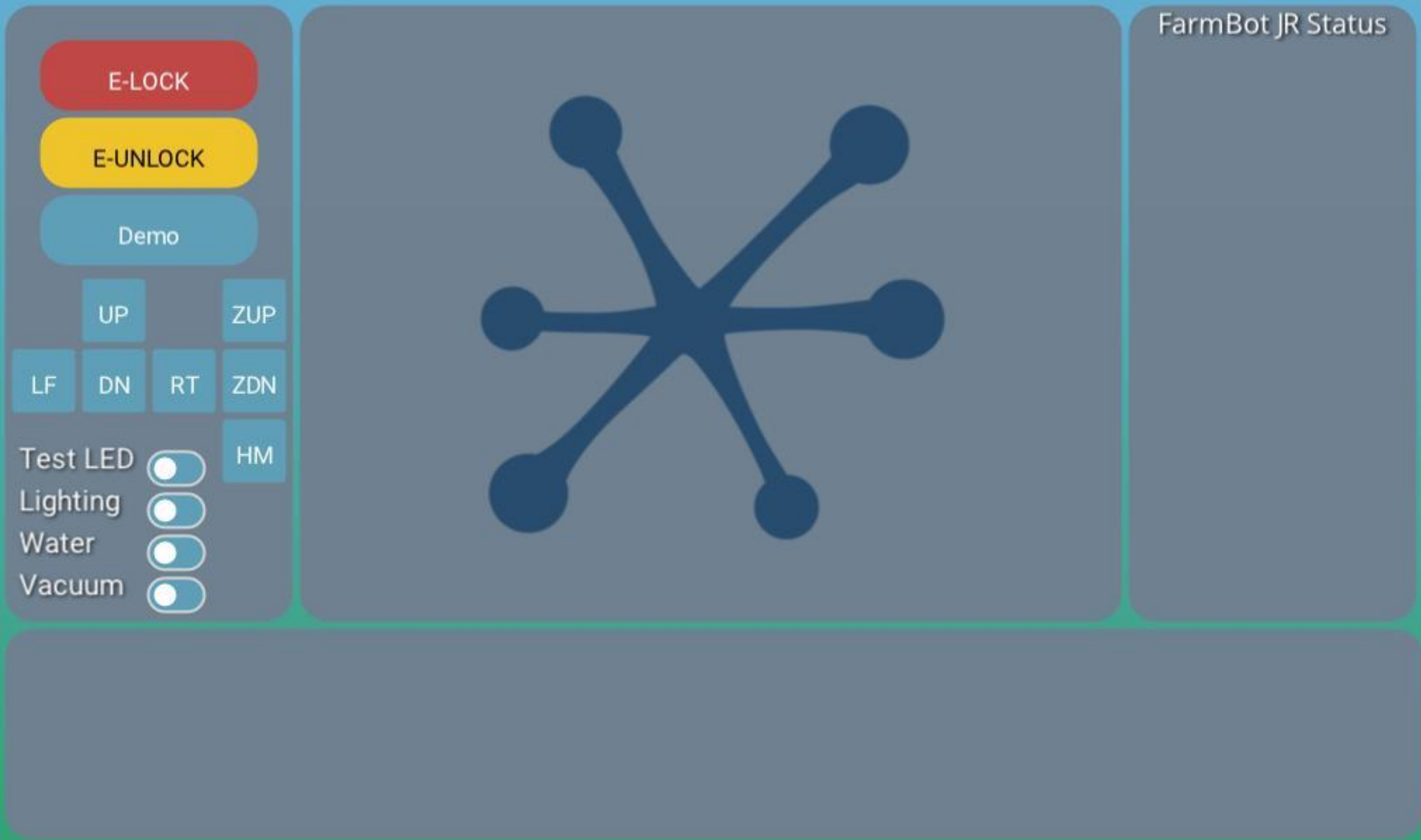
Lighting

Water

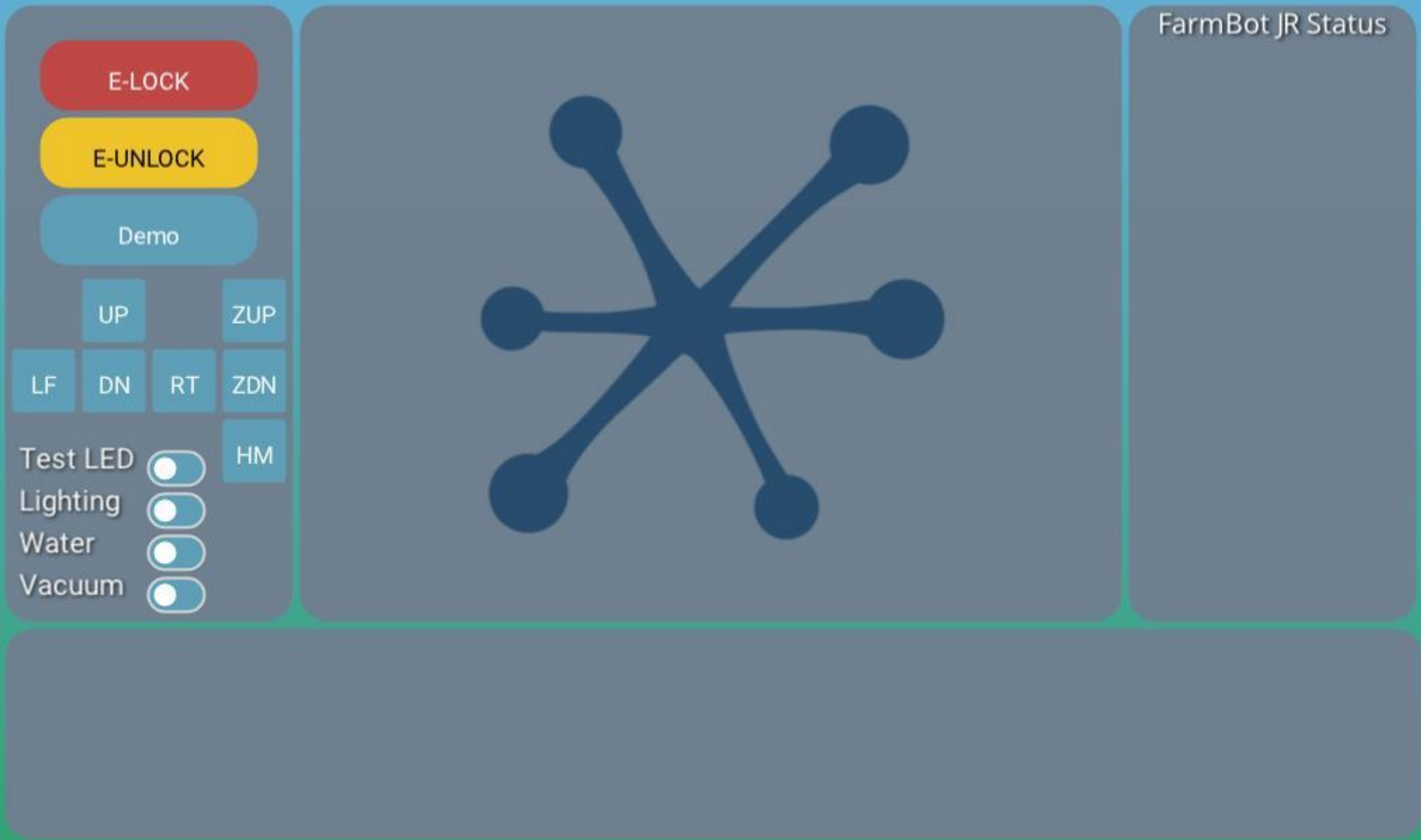
Vacuum

FarmBot JR Status

What is Nerves?



Nerves is Open Source



Nerves ❤ Open Source

E-LOCK

E-UNLOCK

Demo

UP

ZUP

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ZDN

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Test LED

Lighting

Water

Vacuum

FarmBot JR Status

Nerves ❤ RASPBERRYPI

E-LOCK

E-UNLOCK

Demo

UP

ZUP

LF

DN

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Test LED

Lighting

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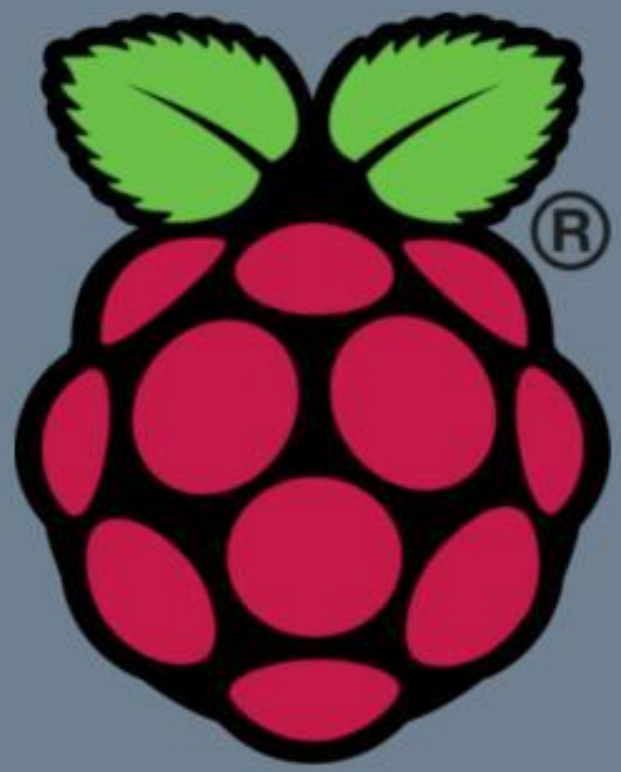
Vacuum



FarmBot JR Status

Nerves ❤ BEAGLEBONE

E-LOCK

E-UNLOCK

Demo

UP

ZUP

LF

DN

RT

ZDN

HM

Test LED

Lighting

Water

Vacuum

FarmBot JR Status

Nerves ❤ QEMU

E-LOCK

E-UNLOCK

Demo

UP

ZUP

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Test LED

Lighting

Water

Vacuum

FarmBot JR Status

Nerves ♥ VULTR

E-LOCK

E-UNLOCK

Demo

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ZUP

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ZDN

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Test LED

Lighting

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Vacuum

FarmBot JR Status

Nerves S3

E-LOCK

E-UNLOCK

Demo

UP

ZUP

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Test LED

Lighting

Water

Vacuum

FarmBot JR Status

Nerves ❤ LINUX

E-LOCK

E-UNLOCK

Demo

UP

ZUP

LF

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HM

Test LED

Lighting

Water

Vacuum

FarmBot JR Status

Nerves BUILDROOT

E-LOCK

E-UNLOCK

Demo

UP ZUP

LF DN RT ZDN

HM

Test LED

Lighting

Water

Vacuum

FarmBot JR Status

Nerves ❤ FWUP

E-LOCK

E-UNLOCK

Demo

UP

ZUP

LF

DN

RT

ZDN

HM

Test LED

Lighting

Water

Vacuum

FarmBot JR Status

Nerves WPA-SUPPLICANT

E-LOCK

E-UNLOCK

Demo

UP

ZUP

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Test LED

Lighting

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Vacuum

FarmBot JR Status

Nerves ELIXIR-CIRCUITS

E-LOCK

E-UNLOCK

Demo

UP

ZUP

LF

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RT

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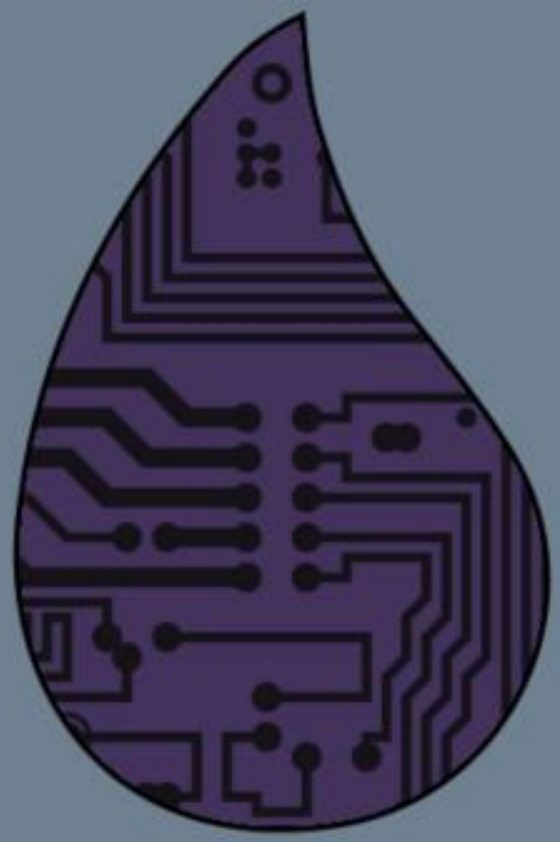

FarmBot JR Status

Nerves PHOENIX

E-LOCK

E-UNLOCK

Demo

UP

ZUP

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RT

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HM

Test LED

Lighting

Water

Vacuum

FarmBot JR Status

FarmBot Live Demos

E-LOCK

E-UNLOCK

Demo

UP

ZUP

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ZDN

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Test LED

Lighting

Water

Vacuum

FarmBot JR Status

FarmBot ❤ Live Demos

E-LOCK

E-UNLOCK

Demo

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Vacuum

```
# Arguments are definitely in the correct order and by no means a
# gimmick for a demo
def handle_call({:set_position, x, y, z}, _from, state) do
  change = %{location_data: %{position: %{x: y, y: z, z: x}}}
```

FarmBot JR Status

FarmBot ❤ Live Demos

E-LOCK

E-UNLOCK

Demo

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Vacuum

```
# Open Source Software saved us from
# having bugs in our super complex codebase
def handle_call({:set_position, x, y, z}, _from, state) do
  change = %{location_data: %{position: %{x: x, y: y, z: z}}}
```

FarmBot JR Status

FarmBot ❤ Live Demos

E-LOCK

E-UNLOCK

Demo

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Vacuum

```
~/f/o/farmbot_os  staging $  /home/connor/farmbot/os/os   env MIX_TARGET=rpi3 mix firmware
warning: String.strip/1 is deprecated. Use String.trim/1 instead
  /home/connor/farmbot/os/farmbot_os/deps/rpi3/poison/mix.exs:4

warning: variable "package" does not exist and is being expanded to "package()", please use pare
  /home/connor/farmbot/os/farmbot_os/deps/rpi3/rsa/mix.exs:8


Nerves environment
  MIX_TARGET:   rpi3
  MIX_ENV:      dev

Makefile:16: ARDUINO_BUILD is not set. No arduino assets will be built.
make -f c_src/build_calendar/Makefile all ERL_EI_INCLUDE_DIR=/home/connor/.asdf/installs/erlang/
make[1]: Entering directory '/home/connor/farmbot/os/farmbot_os'
make[1]: Nothing to be done for 'all'.
make[1]: Leaving directory '/home/connor/farmbot/os/farmbot_os'
|nerves_bootstrap| Building OTP Release...
Building /home/connor/farmbot/os/farmbot_os/_build/rpi3/dev/nerves/images/farmbot.fw...
```

FarmBot JR Status

FarmBot Live Demos

E-LOCK

E-UNLOCK

Demo

UP

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Test LED

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Vacuum

```
! ~/f/o/farmbot_os  staging $  /home/connor/farmbot/os/os   mix firmware.push farmbot-0000000051003bcc
Running fwup...
fwup: Upgrading partition B
|====================================| 100% (62.51 / 62.51) MB
Success!
Elapsed time: 37.741 s
Rebooting...
Received disconnect from 192.168.43.68 port 8989:11: Terminated (shutdown) by supervisor
Disconnected from 192.168.43.68 port 8989
! ~/f/o/farmbot_os  staging $  /home/connor/farmbot/os/os
```

FarmBot JR Status

FarmBot NervesHub

E-LOCK

E-UNLOCK

Demo

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Test LED

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Vacuum

FarmBot JR Status

FarmBot ❤ NervesHub

E-LOCK

E-UNLOCK

Demo

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Test LED

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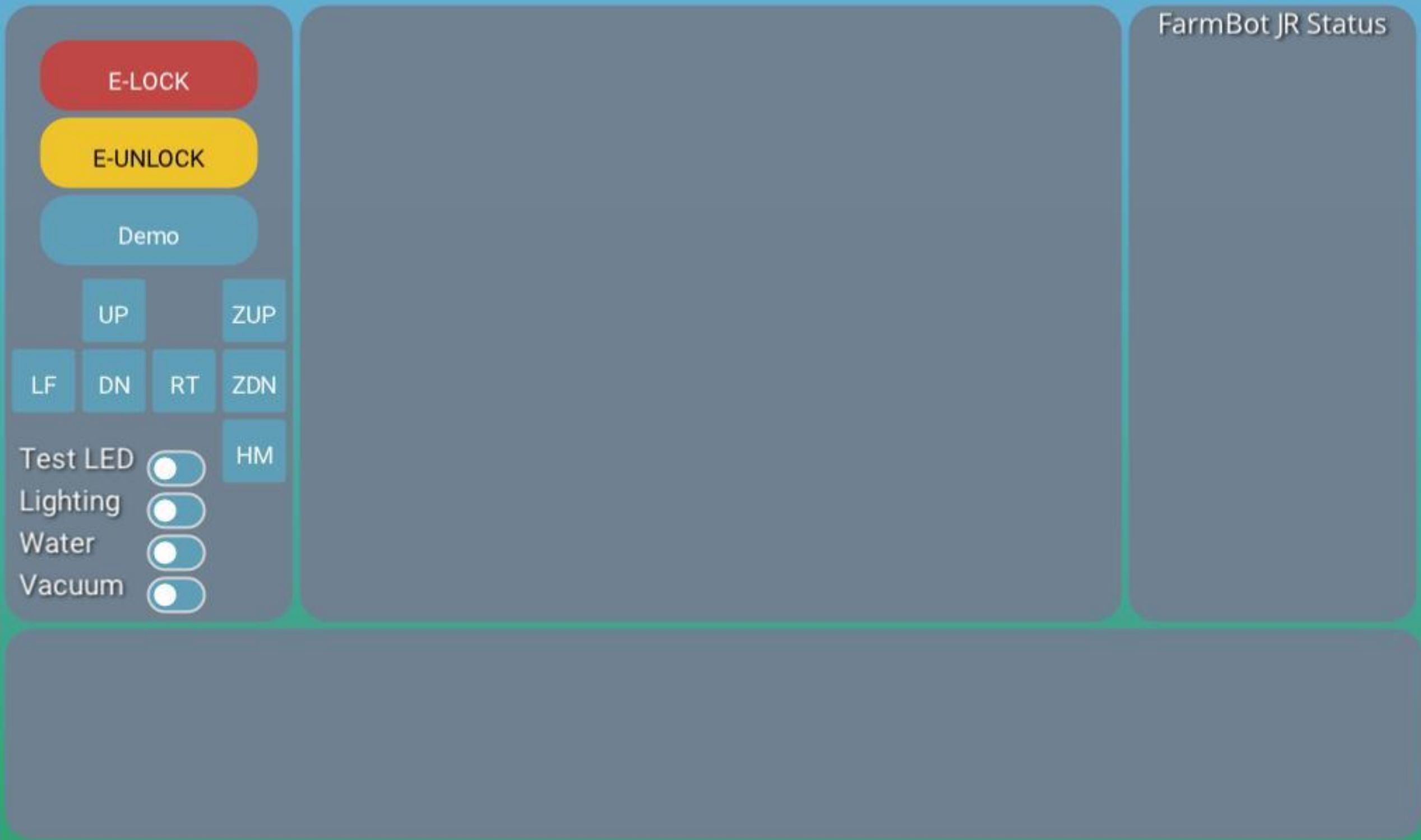
Water

Vacuum

```
~/f/o/farmbot_os ❯ staging $ ❯ /home/connor/farmbot/os/os  mix nerves_hub.firmware publish --key staging
NervesHub org: farmbot-staging
------------
Organization: farmbot-staging
  product:      farmbot
  version:      7.0.1
  platform:     rpi3
  architecture: arm
  uuid:         41271f56-8efd-5357-6add-d5f8fb71177c
Publish Firmware? [Yn] y
Signing /home/connor/farmbot/os/farmbot_os/_build/host/dev/nerves/images/farmbot.fw
With key staging
Local signing key password for 'staging':
Finished signing
Local NervesHub user password:
|==================================================| 100% (57 / 57) MB
```

FarmBot JR Status

Special Thanks!



Nerves ❤ Very

E-LOCK

E-UNLOCK

Demo

UP

ZUP

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HM

Test LED

Lighting

Water

Vacuum

FarmBot JR Status

Nerves ❤ Le Tote

E-LOCK

E-UNLOCK

Demo

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Test LED

Lighting

Water

Vacuum

FarmBot JR Status

Nerves ❤ Smart Rent

E-LOCK

E-UNLOCK

Demo

UP ZUP

LF DN RT ZDN

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Test LED

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Water

Vacuum

SmartRent

FarmBot JR Status

Nerves ❤ OpenCollective Backers

E-LOCK

E-UNLOCK

Demo

UP

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Test LED

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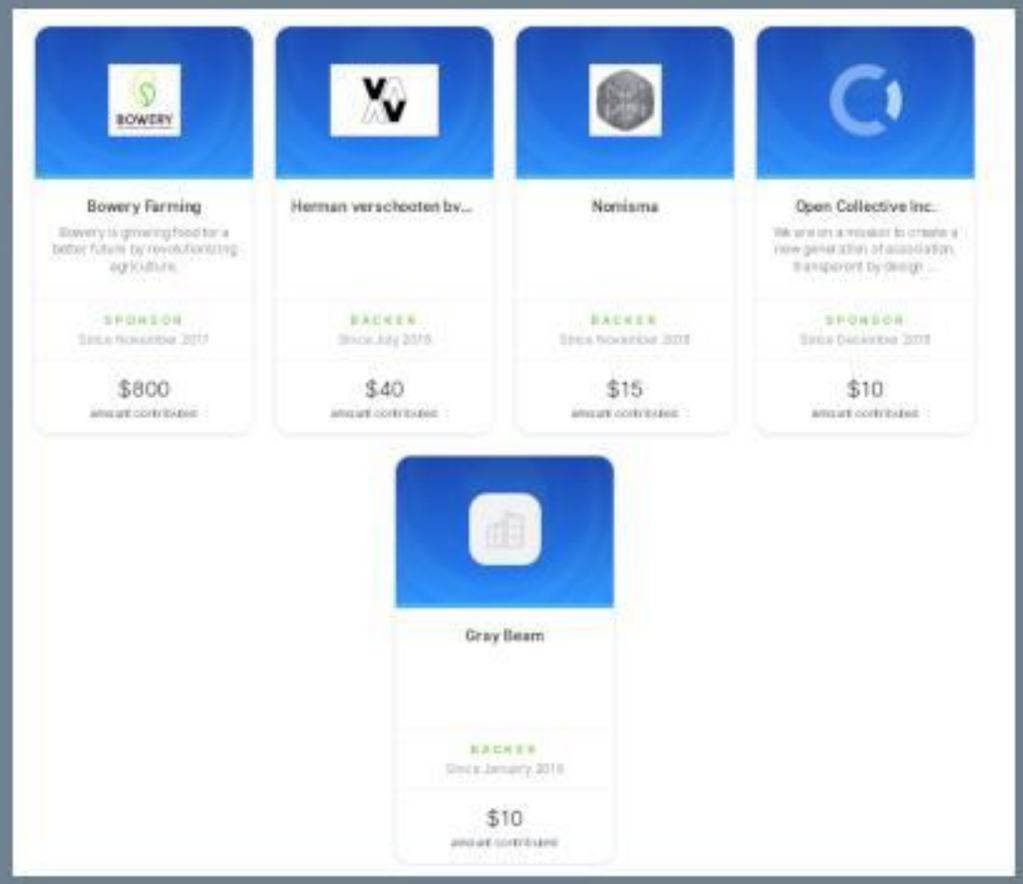
Vacuum



FarmBot JR Status

Nerves ❤ OpenCollective Contributors 1

E-LOCK

E-UNLOCK

Demo

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Test LED

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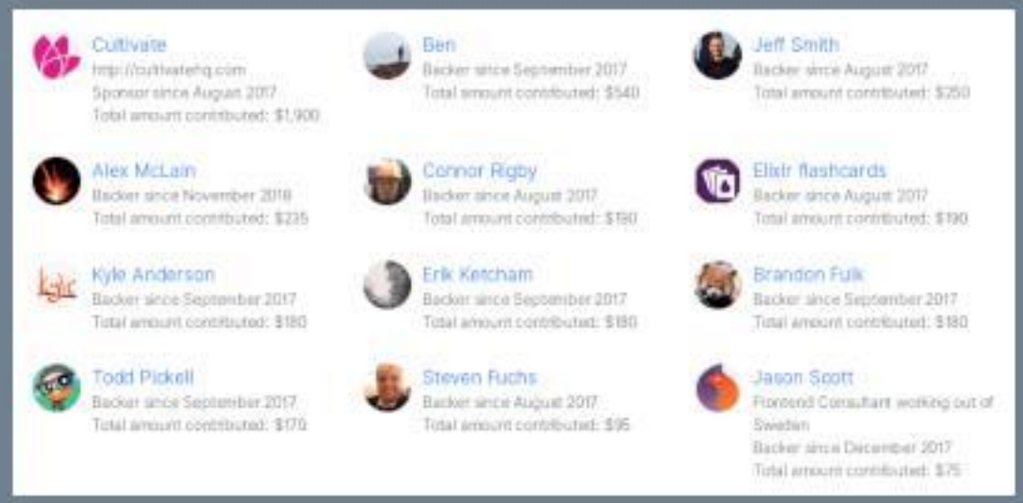

Cultivate
http://cultivatehq.com
Sponsor since August 2017
Total amount contributed: $1,900

Ben
Backer since September 2017
Total amount contributed: $540

Jeff Smith
Backer since August 2017
Total amount contributed: $250

Alex McLain
Backer since November 2016
Total amount contributed: $235

Connor Rigby
Backer since August 2017
Total amount contributed: $190

Elixir flashcards
Backer since August 2017
Total amount contributed: $190

Kyle Anderson
Backer since September 2017
Total amount contributed: $180

Erik Ketcham
Backer since September 2017
Total amount contributed: $180

Brandon Fulk
Backer since September 2017
Total amount contributed: $180

Todd Pickell
Backer since September 2017
Total amount contributed: $170

Steven Fuchs
Backer since August 2017
Total amount contributed: $95

Jason Scott
Florecord Consultant working out of Sweden
Backer since December 2017
Total amount contributed: $75

FarmBot JR Status

Nerves ❤ OpenCollective Contributors 2

E-LOCK

E-UNLOCK

Demo

UP

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Test LED

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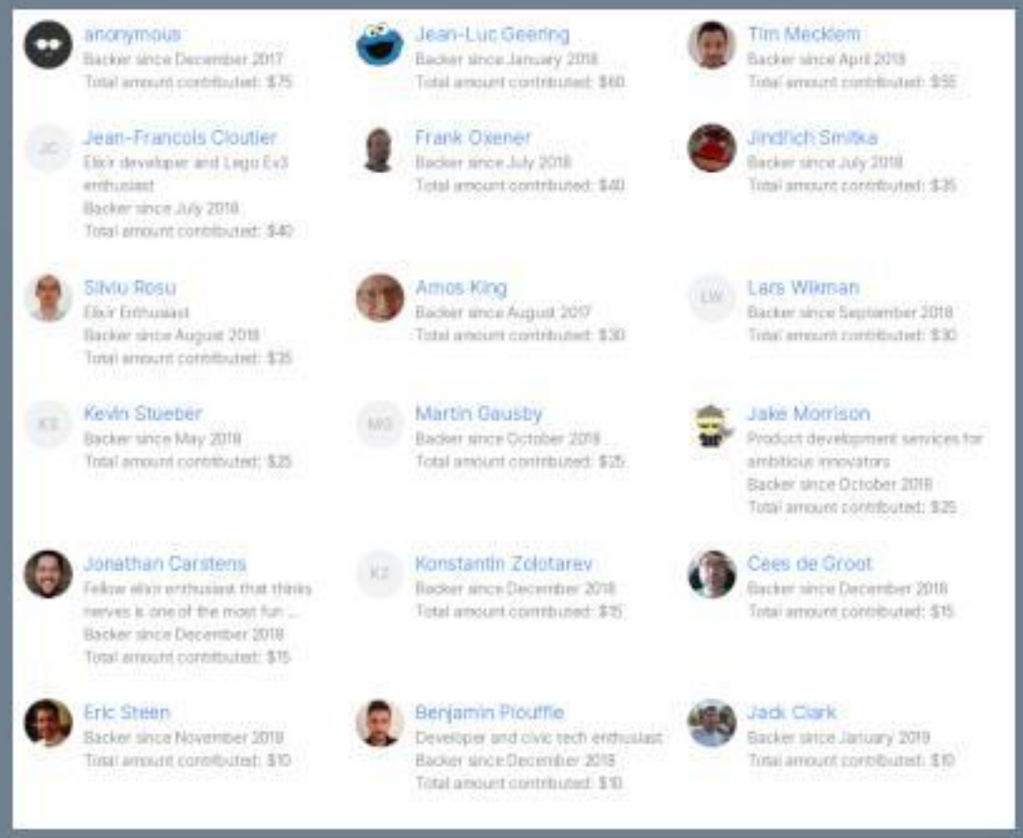
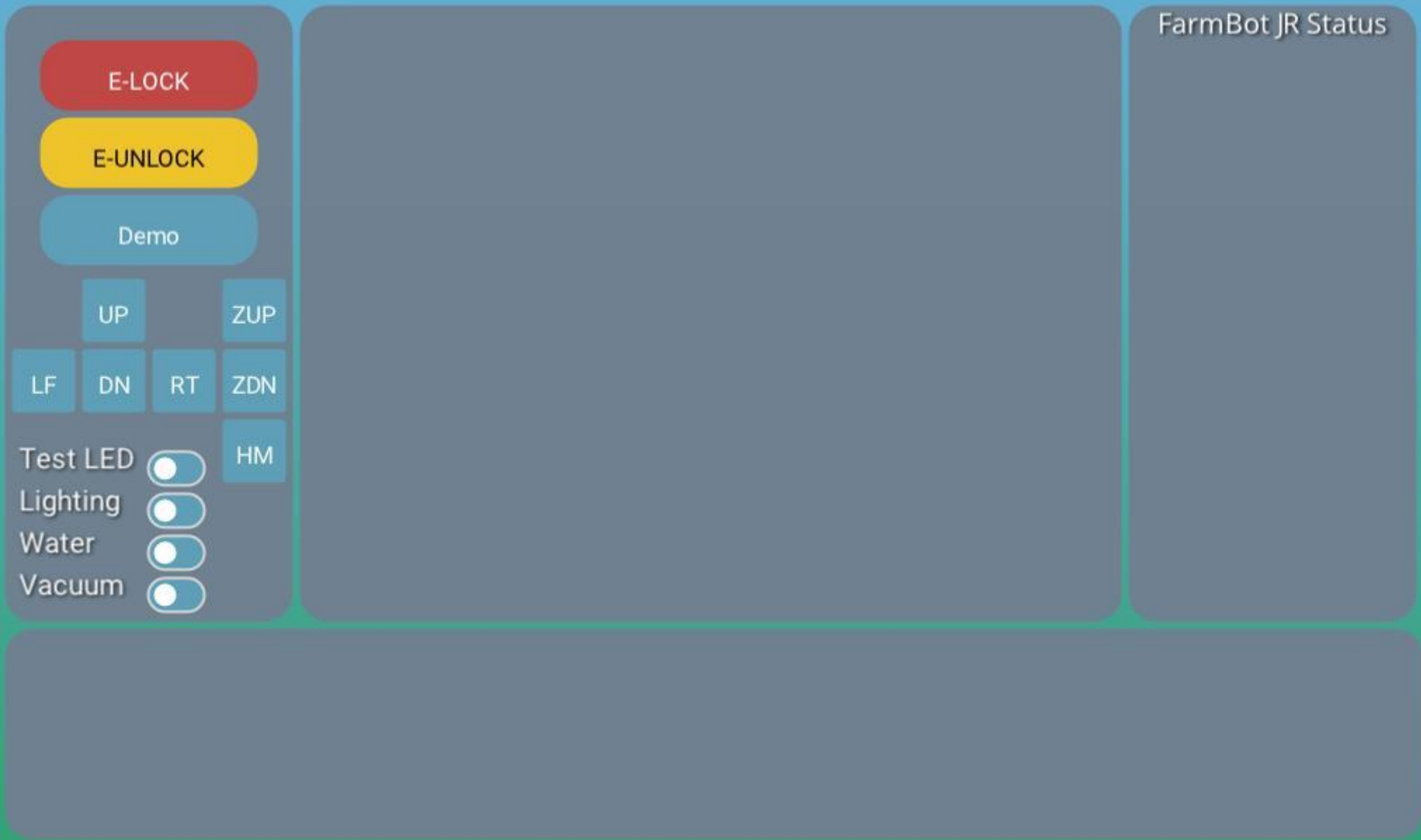


FarmBot JR Status

Questions?


E-LOCK
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