



**HOW TO SPLUNK  
BUTTERCUP  
HERSELF...?**

# BASTI

(SEBASTIAN KRAMP)

POW!





**WOW!**

**WHAT'S THE IDEA?**

**COLLECT DATA FROM A HORSE AND ANALYZE IT!**

**WHY?**

**BECAUSE... I CAN!**

# **DO WE HAVE A HORSE SOMEWHERE?**

**NAME: BUTTERCUP**

**DESTINY: MASCOT**

**WHY A HORSE? BECAUSE A  
PROGRAMMER WANTET TO  
HAVE ONE!**



# **DO WE HAVE A HORSE SOMEWHERE?**

**[HTTPS://WWW.SPLUNK.COM/EN\\_US/BLOG/SPLUNKLIFE/  
THE-STORY-OF-BUTTERCUP-THE-SPLUNK-PWNY.HTML](https://www.splunk.com/en_us/blog/splunklife/the-story-of-buttercup-the-splunk-pwny.html)**



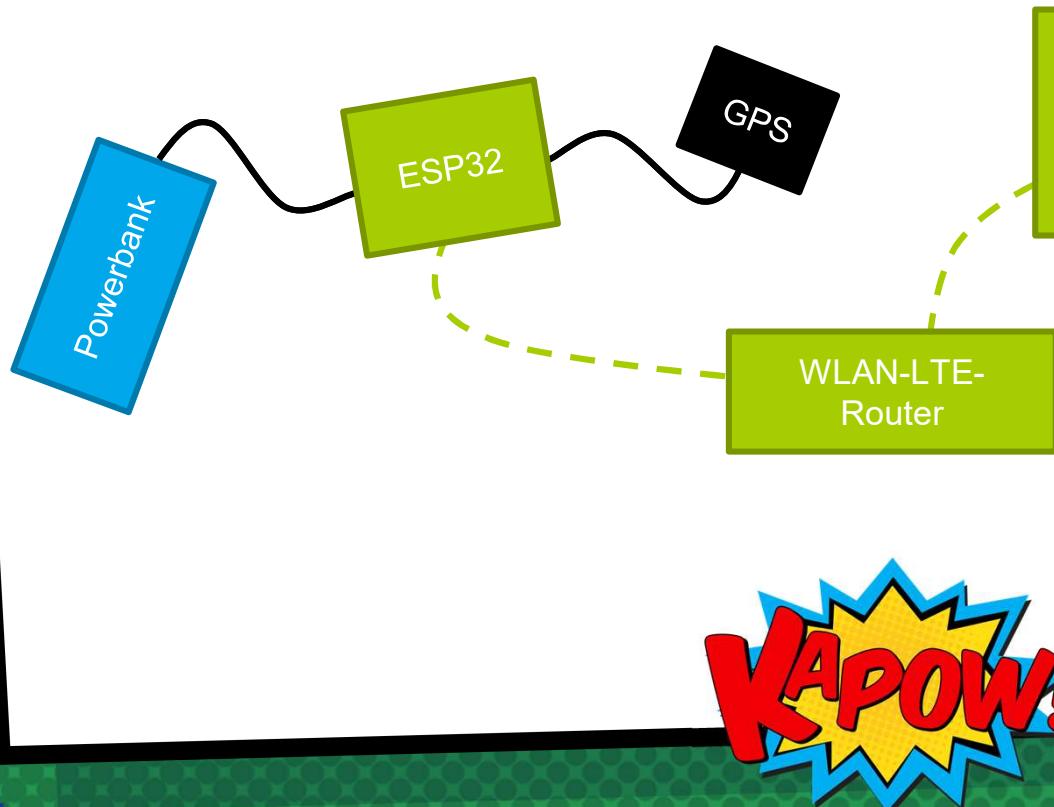


## ***DATA WHICH CAN BE COLLECTED***

- × GPS
- × Weather
- × Water consumption



# **GPS-SENSOR V1 ESP32**



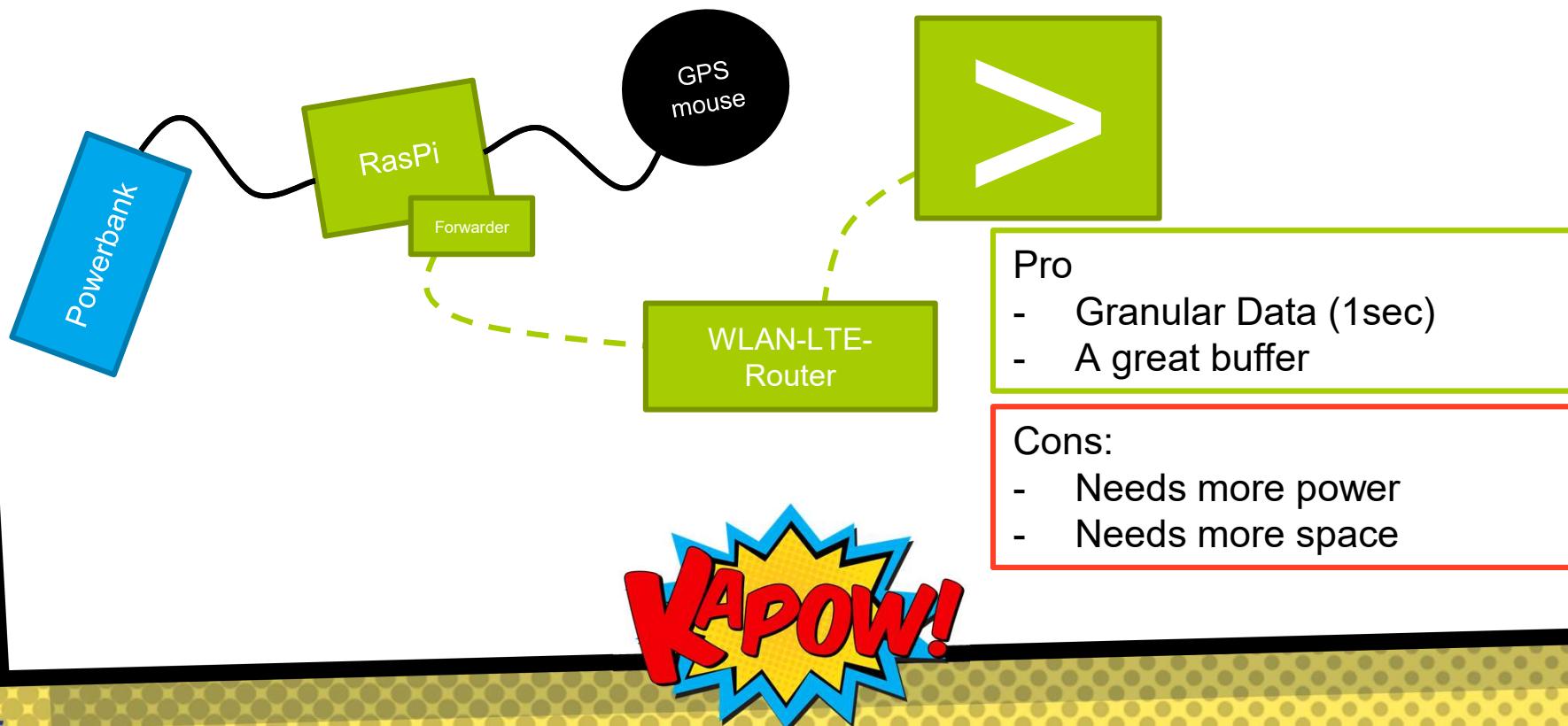
## Pro

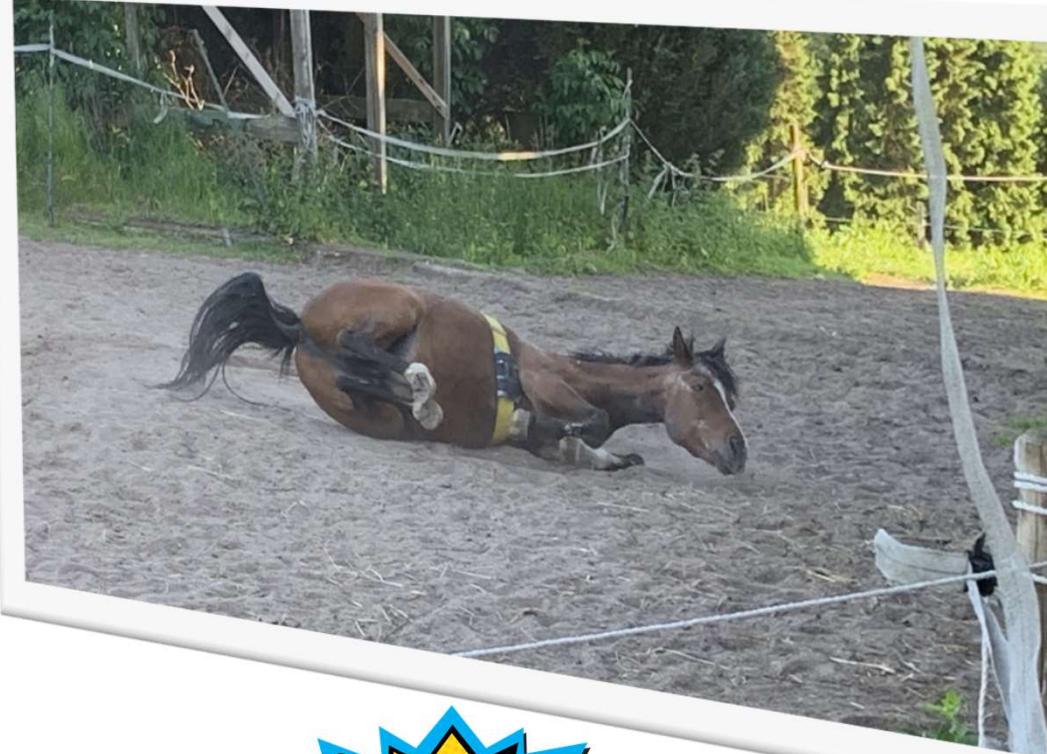
- Granular Data (1sec)

## Cons:

- No buffer if WLAN is not reachable
- Powerbank stopps because power consumption is to low

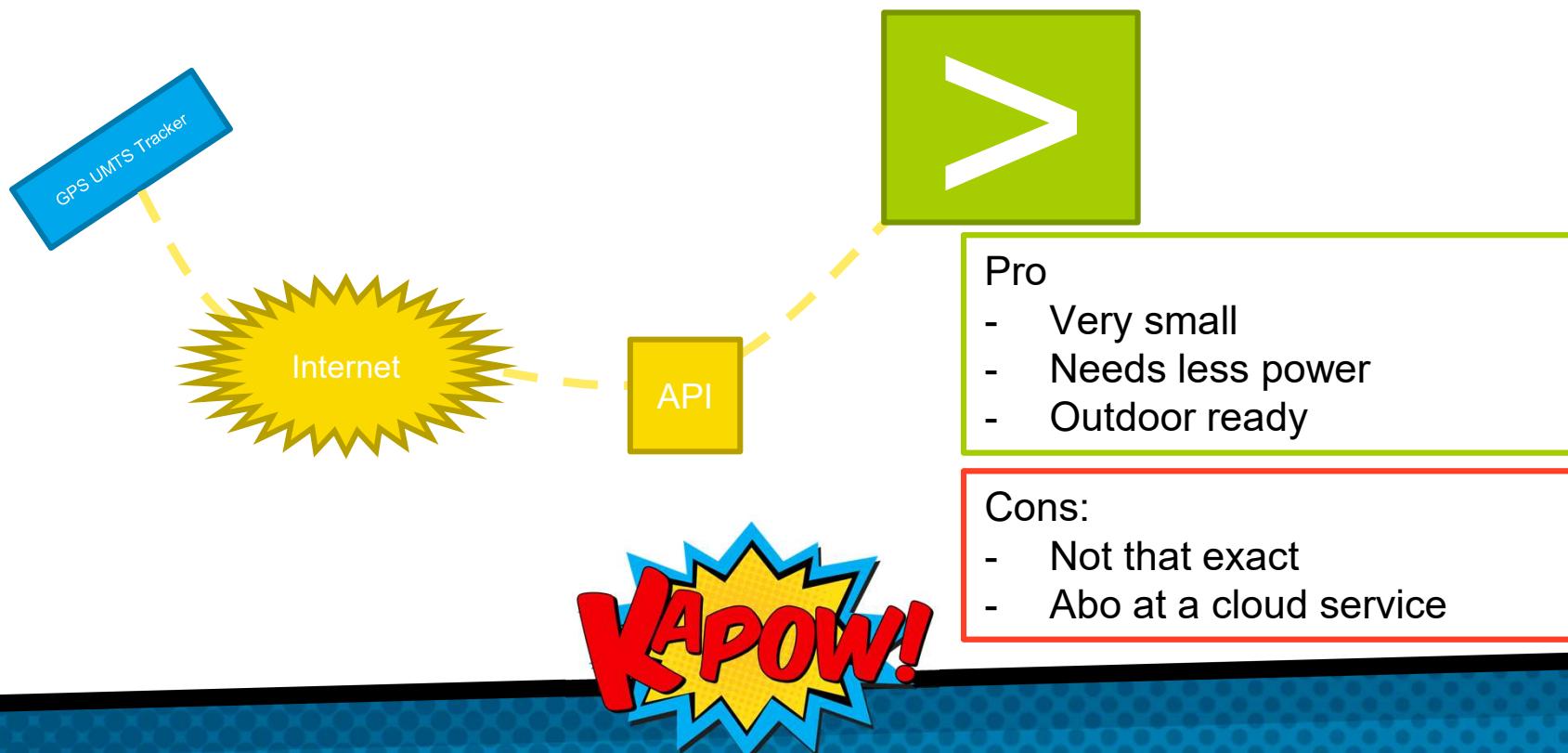
## **GPS-SENSOR V2 - RASPI**





KAPOW!

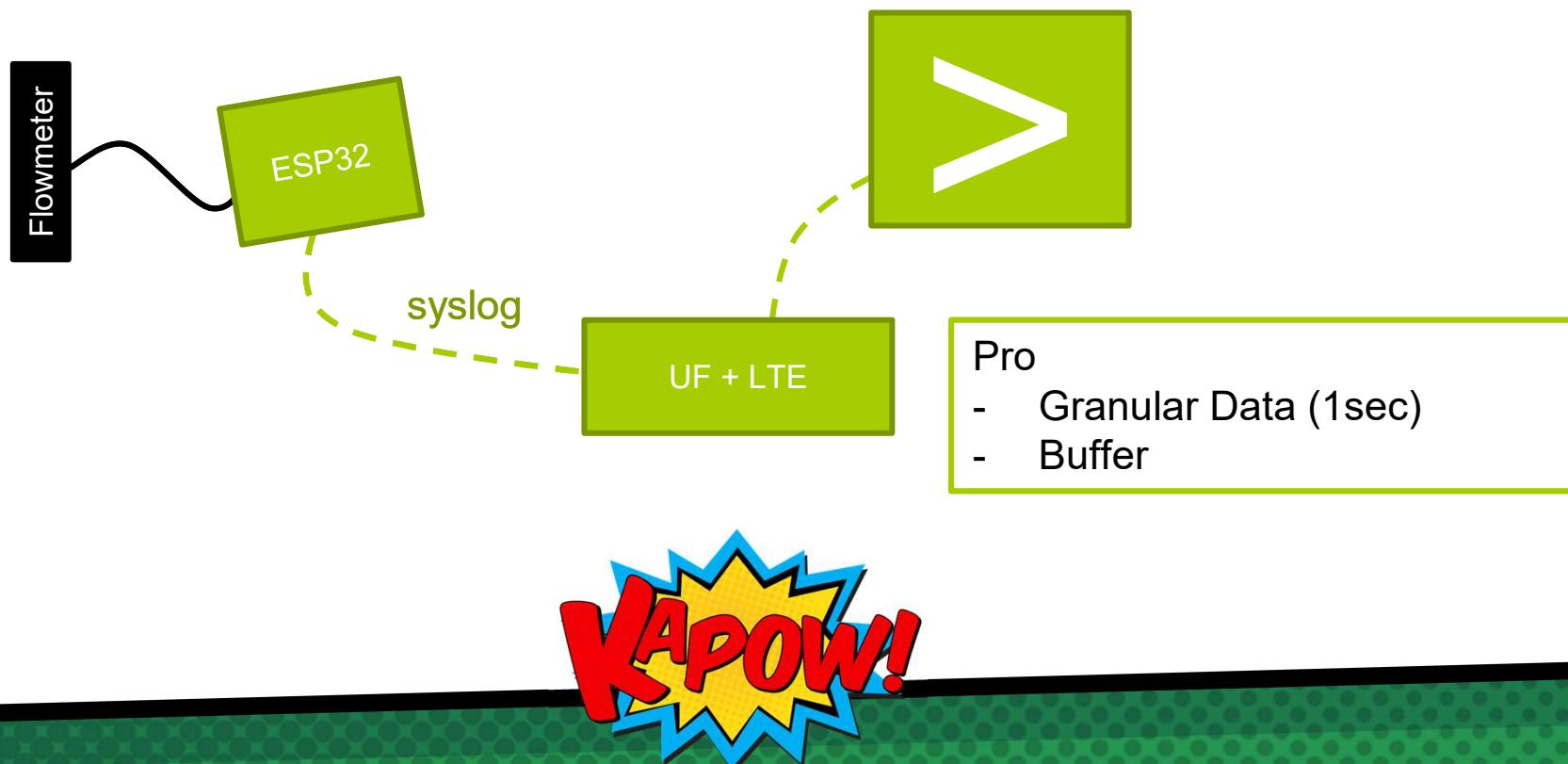
# **GPS-SENSOR V3 - 3<sup>RD</sup> PARTY DEVICE**



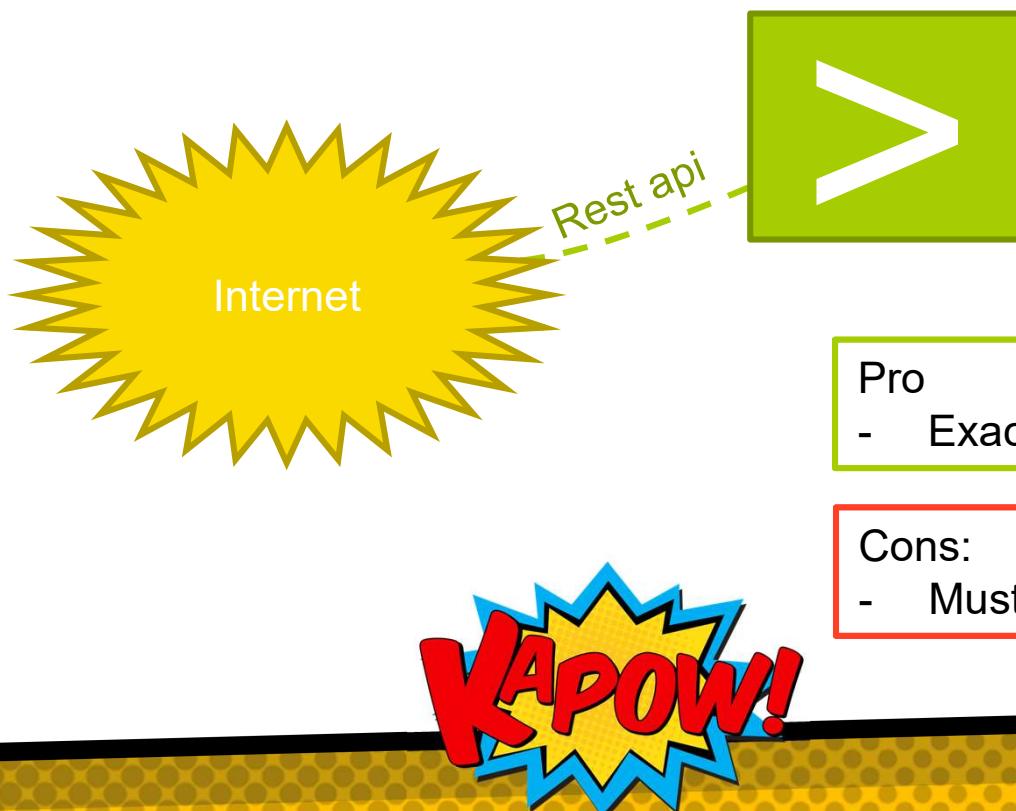
# **GPS-SENSOR V3 - 3<sup>RD</sup> PARTY DEVICE**



# WATER-SENSOR



# **WEATHER**



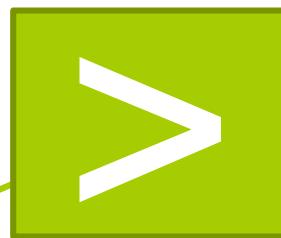
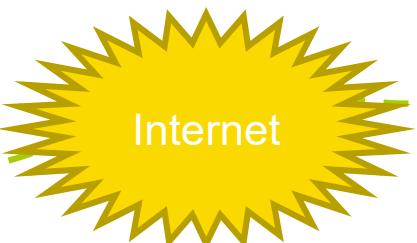
**Pro**

- Exact data

**Cons:**

- Mustn't have a longer stop

# **RIDING-TRACKING-APP**



## Pro

- GPS-Tracking
- Gait detection
- Cloud-Service

## Cons:

- Manual start and stop

**KAPOW!**



# STANDARD HORSE ANALYTICS



# **WHERE DO I COLLECT WHICH DATA?**



## GPS

- Movement on pasture
- Movement in walker

## flowmeter

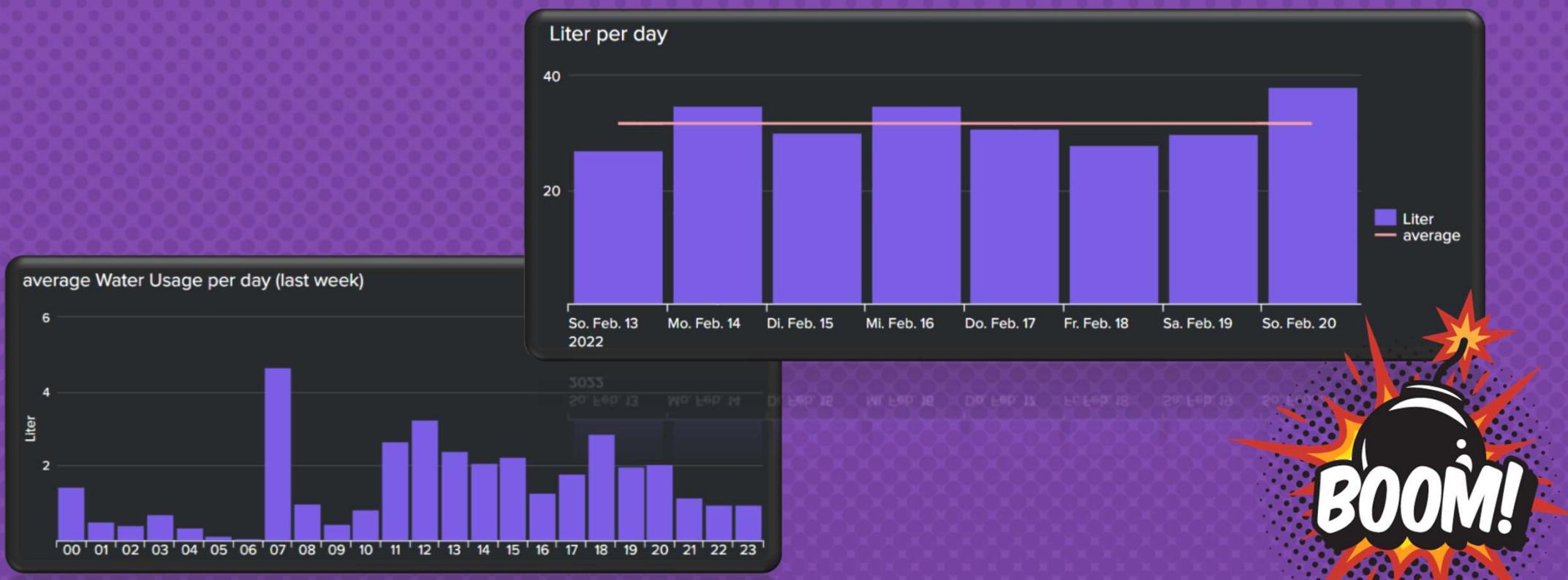
- Detecting of liter by second when the horse is in the box

## Riding App

- Gait detection
- GPS detection
- Tact of gait

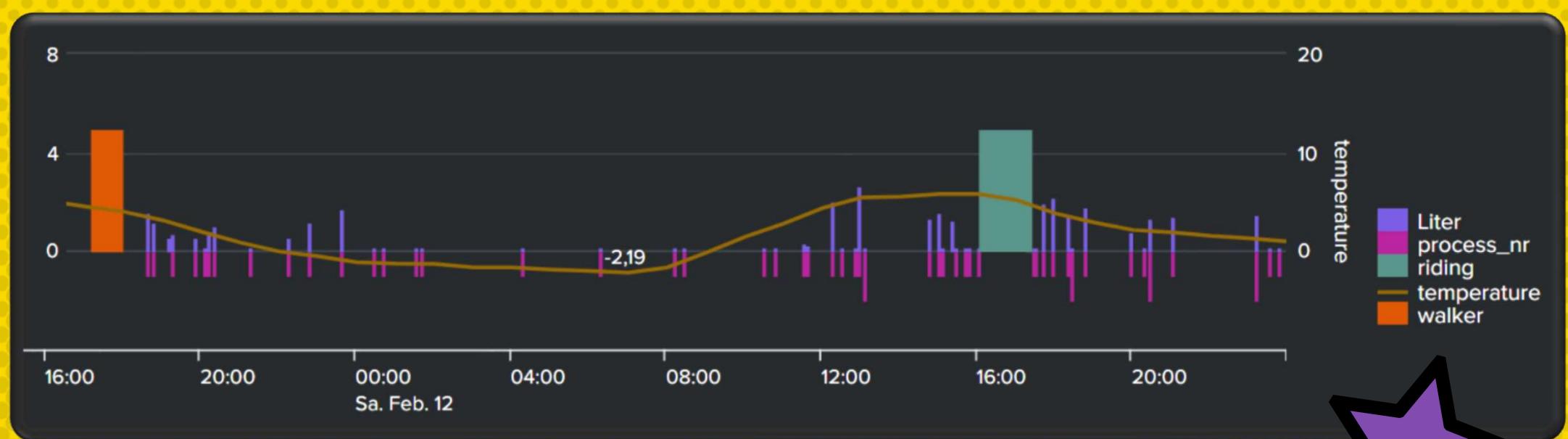
# WATER STATISTICS

Normal for a horse of this size is 25l-40l





# FROZEN!





# DISTANCE



date	km_canter	km_trot	km_walk	km_walker	Total
07.02.2022	1.872	2.55	2.12	8.80	15.342
08.02.2022	1.04	2.25	2.26	9.60	15.15
09.02.2022	0.624	2.55	2.61	7.73	13.514
10.02.2022	1.248	1.95	2.47	8.40	14.068
11.02.2022	1.248	3.6	1.76	6.40	13.008
12.02.2022	1.248	2.1	4.094		7.442
13.02.2022	1.664	2.4	1.48	8.40	13.944

# BPM





# DEEP HORSE

# ANALYTICS





# HEALTHY VS SICK



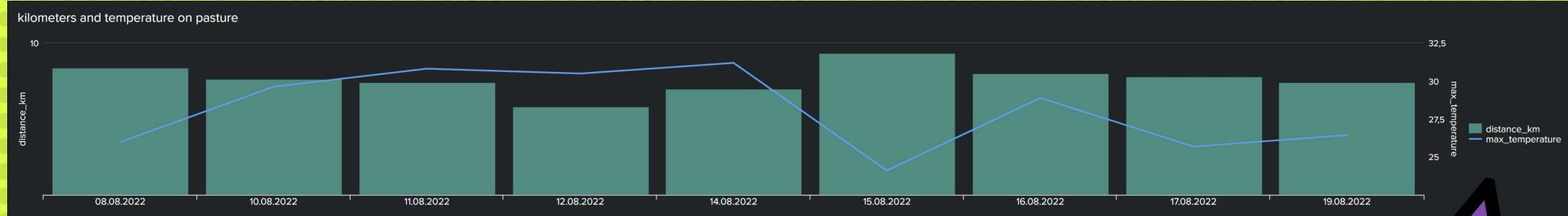
Avg 33L WHEN HEALTHY



Avg 30L WHEN SICK



# WALKING WHEN IT'S HOT OUTSIDE



HORSES ALSO GET LACY WHEN IT'S WARMER!

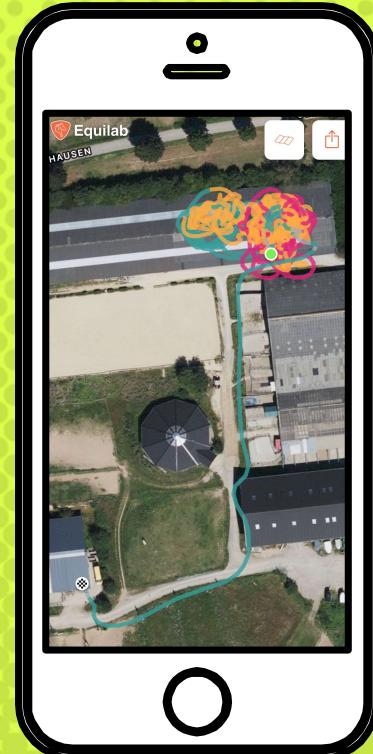


# **TRAINING TYPE**



**RIDING**

**LODGING**



# THE MATHEMATICAL WAY

# TRAINING TYPE

_time	type	wday
2022-04-18	dressage	Monday
2022-04-19	dressage	Tuesday
2022-04-20	outside	Wednesday
2022-04-22	outside	Friday
2022-04-24	outside	Sunday
2022-05-09	dressage	Monday
2022-05-14	dressage	Saturday
2022-05-22	dressage	Sunday
2022-05-28	dressage	Saturday
2022-06-12	outside	Sunday
2022-08-29	Longe	Monday
2022-08-30	dressage	Tuesday
2022-08-31	dressage	Wednesday
2022-09-01	dressage	Thursday



# WITH MACHINE LEARNING

# TRAINING TYPE

Classification Results (Confusion Matrix) ↗

Predicted actual ↴	Predicted Longe ↴	Predicted dressage ↴	Predicted outside ↴
Longe	14 (100%)	0 (0%)	0 (0%)
dressage	0 (0%)	24 (100%)	0 (0%)
outside	0 (0%)	0 (0%)	17 (100%)

SUPERVISED LEARNING:

RANDOMFORESTCLASSIFIER  
"TYPE" FROM "AVG\_LAT"  
"AVG\_LON" "LAT" "LON"



_time ↴	wday ↴	✓ type ↴
2022-04-18 06:30:00	Monday	dressage
2022-04-18 06:40:00	Monday	dressage
2022-04-18 06:50:00	Monday	Longe
2022-04-18 07:00:00	Monday	Longe
2022-04-18 07:10:00	Monday	dressage
2022-04-18 07:20:00	Monday	dressage
2022-04-18 07:30:00	Monday	dressage
2022-04-19 05:40:00	Tuesday	dressage
2022-04-19 05:50:00	Tuesday	dressage
2022-04-19 06:00:00	Tuesday	Longe
2022-04-19 06:10:00	Tuesday	Longe
2022-04-19 06:20:00	Tuesday	dressage
2022-04-19 06:30:00	Tuesday	Longe
2022-04-20 09:10:00	Wednesday	outside
2022-04-20 09:20:00	Wednesday	outside
2022-04-20 09:30:00	Wednesday	outside
2022-04-20 09:40:00	Wednesday	outside
2022-04-20 09:50:00	Wednesday	Longe

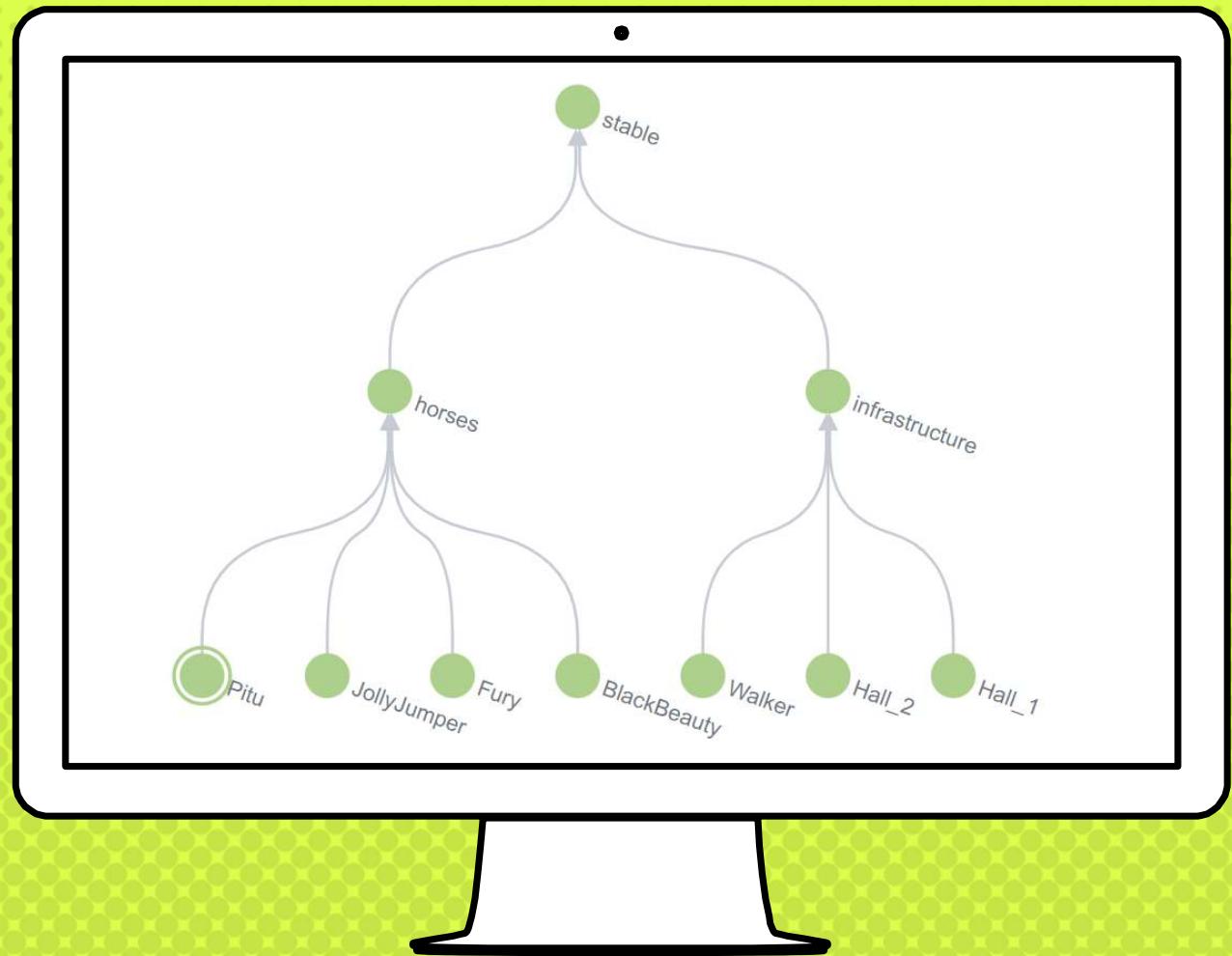




# HORSE AS A SERVICE



# **STABLE SERVICE INTELLIGENCE**





**WHERE IS ALL**



**THIS FOR?**



## **FOR A PRIVATE USECASE**

### **Detection of work**

Figure out, how a horse was trained, by training type, duration and if the tact was staying the same. You also can figure out, how hard the training was.

Project for the future: take health data from rider

### **Detection of water consumption**

- Detect leaks of water pipes to react as fast as possible to prevent further problems

### **Detection of horse wellness**

Detect if a horse could become sick because of detecting anomalies



?#^@!

# **THINK BIG! FOR AN ENTERPRISE USECASE**



## **360° view of your stable**

By using “stable service intelligence” you have a 360° view about all your heard and how your infrastructure is used.

# ***LET'S REVIEW SOME STUFF***

## **Be creative**

Free your mind out of IT, there are so many things which are splunkable! And it's interesting how you can find dependencies!

## **Have fun**

It makes fun developing an seeing the project going bigger and bigger, especialy when you find people who are telling you that this won't work!

## **Seek the challenge**

Don't think it's not possible, more things are possible than you suppose in the first moment

## **Interact**

Interact with all parties, developer, user, owner and talk about this with other enthusiasts

## **learning**

By challaging your self you'll learn so many things you'll one need in the future

## **show**

Talk about your products, independet if it makes sence or not, even if it's just for fun. Maybe you can help someone with this.



?#^@!

# THANKS!

