Project Pitch

by Angel Duarte

Brief Description

→ Browser Simulations

→ Free & Open Source   (GPL)

→ For Education

    → Vernier Probes

    → Other simulations   (scalable / modular)

Me:

- Physics BS
- Philosophy BA
- MEd
- Masters in Natural Science (MNS)
- TA w/ PiRT

Modeling Physics Education

Modeling Physics Education

- ASU
- physics grassroots
- constructivist pedagogy

- philosophy of science
- formal syntactic logic & deductive reasoning

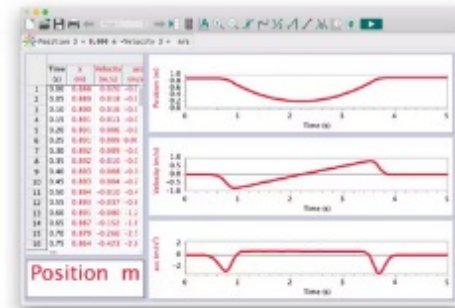- epistemic construction of theoretical models
- hands-on approach

Vernier Probes & Software

Vernier Logger Pro

- Sensors
  - Proprietary Software
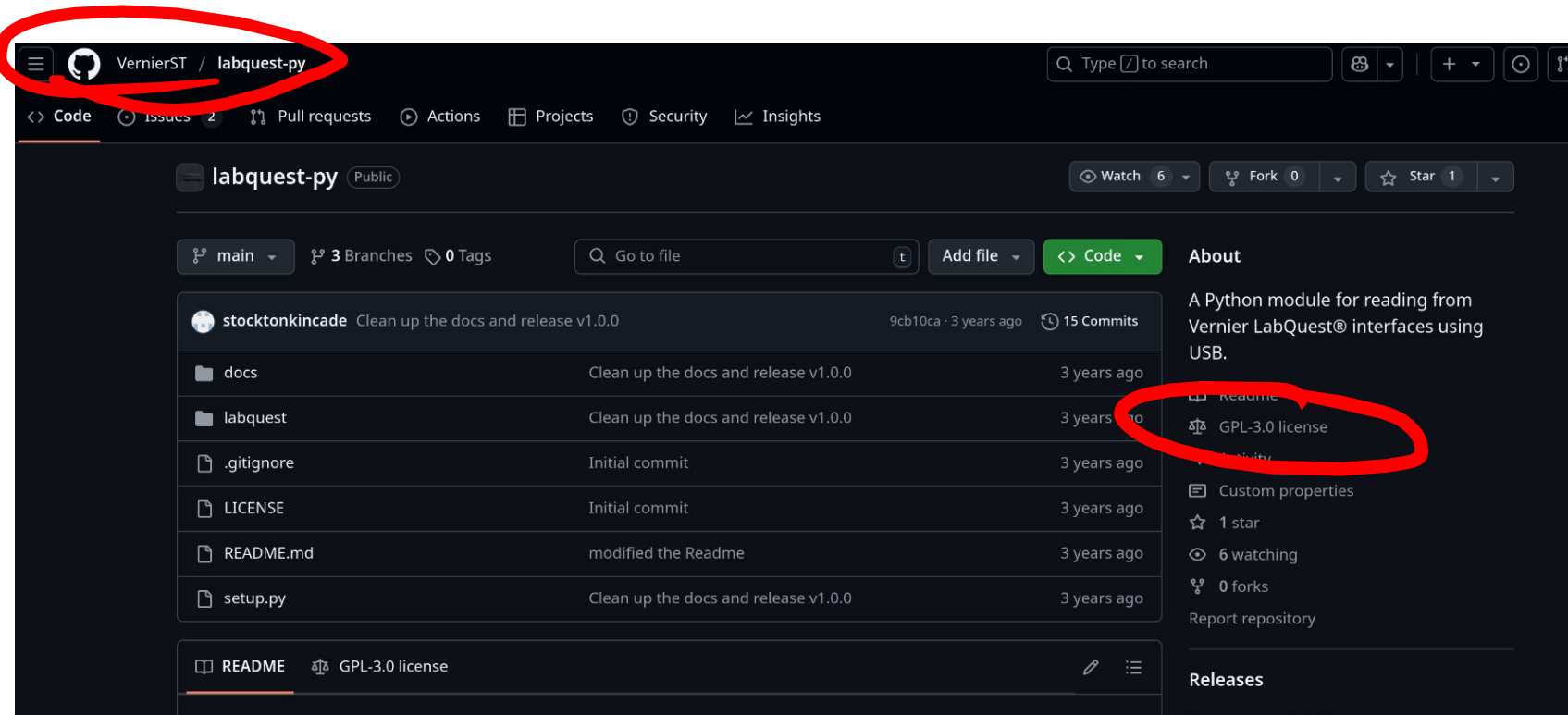- Discontinued
  - Windows is awful
  - Linux good

Logger Pro® 3
Final Update

Logger Pro is no longer under development and will not receive further updates. As of December 31, 2024, we are no longer be selling new licenses for Logger Pro. **Click here for more information.**

Vernier Open Source

- FOSS

- Vernier

- Labquest

- Geo

- Arduino

Pyscript

PyScript is an open source platform for *Python in the browser*.
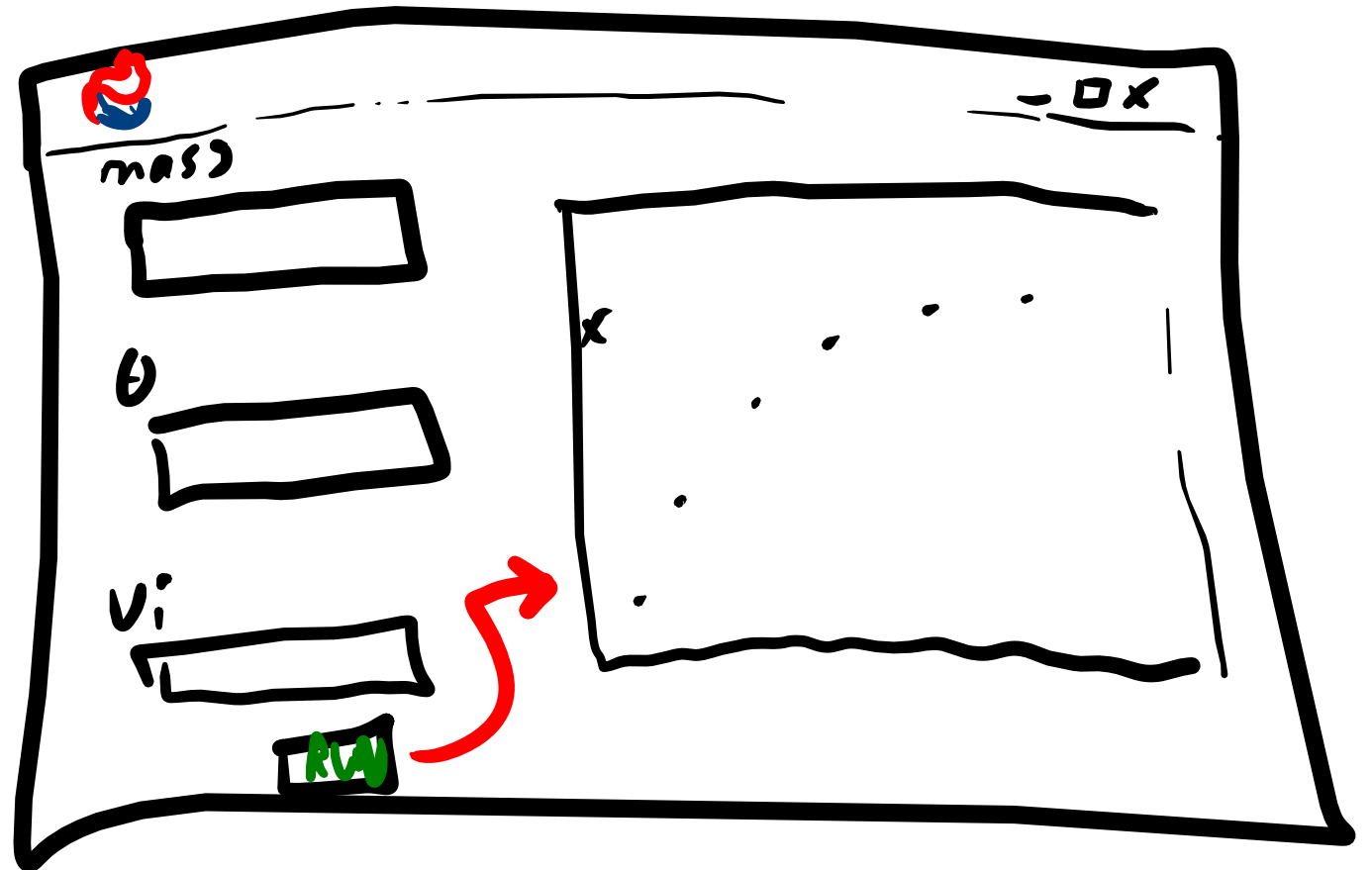The latest version is 2025.3.1.

```
MicroPython v1.24.1 on 2024-11-30; JS with Emscripten
Type "help()" for more information.
>>> print("Hello, from PyScript!")
Hello, from PyScript!
>>> # Your turn...
>>> print("Hello PHY 432")
Hello PHY 432
>>>
```
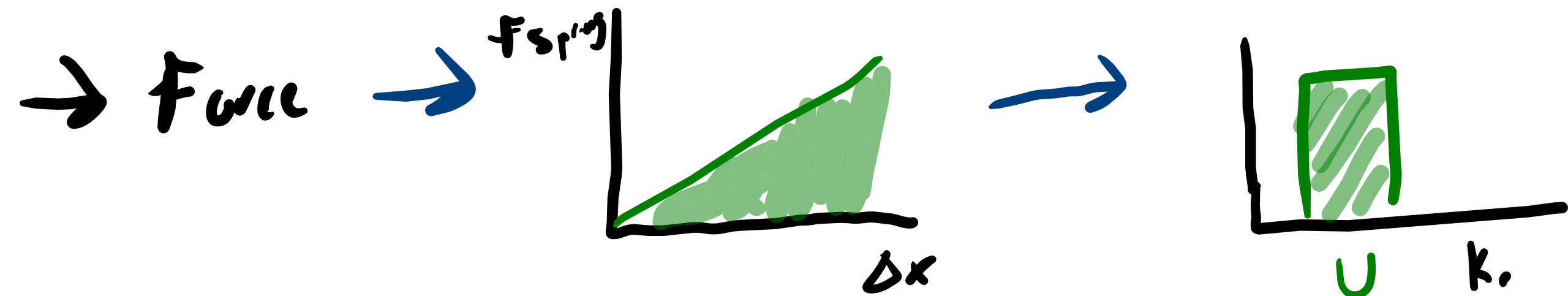
The Vision:

Kinematics Lab 1.html

or
URL

mass

θ

vi

RUN

Sensors:

→ Motion → x → $\dfrac{dx}{dt}$ → $\dfrac{d^2x}{dt^2}$

→ Force →

F_{spring}

Δx

U k.

→ Photogates

& more

Other options

- Multiple-body
Projectile motion
Simulation

Object

like

MARIO
Galaxy

or

Elden
Ring

V_i
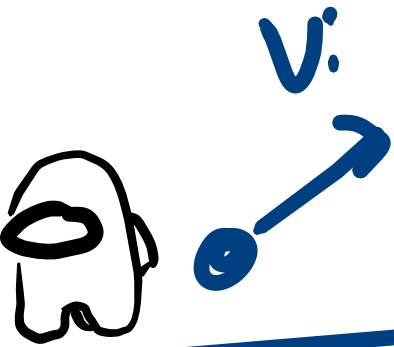
Libraries:

- numpy
- Matplotlib (animation)

- Pyscript

- Turtle?

- IDK

Objectives:

- At least one functional, fully featured lab (+ Back-end)
  (+ Front-end)
- Make probes useable
  - Lab relevant analysis tools
- Produce animations for simulations

- Make it useable &   - no chatgpt phase gpl
  customizable for P:RT
- Proof of concept sorta thing

Questions?