T>E>H from the 6th of April until the 11th of May 2018 (Holden Gallery)

root

April 2, 2018

set up 3-6/7 Manchester = igus dryling rail, system profile, scrap pc parts and rocks

opening FRI 6th 3-rocks and materials/4-basic setup/tests/5-tweak and bootusb/6-final

TODO notes

remote camera test

mplayer -fps 200 -demuxer h264es ffmpeg://tcp://10.0.1.3:2222 on laptop

raspivid -t 0 -w 1280 -h 720 -hf -ih -fps 20 -o - | nc -k -l 2222 on pi

values: black/50 white/120???

pi wires

brown to gnd

orange to a5, red to a4

stepper

NOTES: remember to take lab power supply!

`https://www.pololu.com/product/2133`

`https://a.pololu-files.com/picture/0J4233.600.png?665d623ba84232de64511d8aa6644836`

// the setup function runs once when you press reset or power the board void setup() { pinMode(3, OUTPUT); //step pinMode(4, OUTPUT); //dir digitalWrite(4, LOW); }

// the loop function runs over and over again forever void loop() { digitalWrite(3, HIGH); // delay(10); digitalWrite(3, LOW); delay(10); }

with heatsink at bottom:
top right side:
blue: VMOT +6V/12V
black: GND
to motor: yellow,red, green, blue on NEMA (soldered from left as YX-GRXB
red: LOGIC PWR 5v arduino
black: GND
top left side:
green: STEP=2
yellow: DIR=3

pumps

all tested and working on pins:
int darkone=10; int darktwo=11; int light=9;
note that arduino is connected to psu gnd through stepper thing!

derbyshire sites (checked on mindat and google maps - there might be more?):

route: https://www.google.de/maps/dir/Manchester+Airport+%28MAN%29,+Manchester,+UK/53.163973,-1.49179/%0953.294722222222+,+-1.6722222222222/%0953.13111,-1.62778/'53.15528,-1.47333'/'53.15167,-1.48694'/@53.1492512,-1.7800078,10z/data=!4m25!4m24!1m5!1m1!1s0x487a52c0dfd893c5:0x8b0b8247e5e4a5e0!2m2!1d-2.2727303!2d53.3588026!1m0!1m3!2m2!1d-1.6722222!2d53.2947222!1m3!2m2!1d-1.62778!2d53.13111!1m3!2m2!1d-1.47333!2d53.15528!1m3!2m2!1d-1.48694!2d53.15167!3e0

https://ukfossils.co.uk/2011/03/11/butts-quarry/

https://www.google.de/maps/dir/Manchester+Airport+%28MAN%29,+Manchester,+UK/53.163973,-1.49179/@53.2640202,-2.4460329,9z/data=!3m1!4b1!4m9!4m8!1m5!1m1!1s0x487a52c0dfd893c5:0x8b0b8247e5e4a5e0!2m2!1d-2.2727303!2d53.3588026!1m0!3e0

Ladywash mine: https://www.mindat.org/loc-1493.html way off? british flourpar company mine close by?

Bonsall moor quarry: https://www.mindat.org/loc-4715.html - maybe on way to ashover...

Milltown quarry: https://www.mindat.org/loc-1482.html close to ashover

Gregory mine: https://www.mindat.org/loc-818.html close to ashover
https://pdmhs.co.uk/derbyshire-industrial-heritage-sites/

frame and carriage

2m long - q of transport unless we just use off-shelf steel/aluminium as in:
http://www.instructables.com/id/CoreXY-CNC-Plotter/ see: coreXY_parts_list.txt (2m lengths 1.5mm x 20mm x20mm Tee-section aluminium extrusion, drive belts etc)
or use two sets ordered to berlin and manchester
http://www.slidercam.ch/ uses https://www.igus.de/wpck/19782/DryLin_W_konfig drylin
https://legotronics.wordpress.com/2015/11/24/diy-3-axis-cnc-router-prototype/ uses screw thread
https://www.damencnc.com/products/mechanical-components/hiwin-linear-guideways/hg-standard-series/hgh-carriage-square-type/_404_w_197__GB_1 - carriages and rails
(also has drylin)
as in: https://3dwarehouse.sketchup.com/model.html?id=ff37fb1c-6565-4be0-96f1-48dfcef
drylin: WS-16-60 drylin® W, Linearführungssystem Länge 2000 mm WW-16-60-10 drylin® W, Linearführungssystem

chem/materials

for the head, cable ties, extensions, plastic tubing (reichelt),
ammonium iron(III) citrate and potassium ferricyanide
equal volumes of an 8.1% (w/v) solution of potassium ferricyanide and a 20% solution of ferric ammonium citrate are mixed. Rinse after this.
Solution A: 25 grams Ferric ammonium citrate (green) and 100 ml. water. - so for 1l = 250g Solution B: 10 grams Potassium ferricyanide and 100 ml. water. 1l=100g
chem: add Ammonium ferric citrate to water into one container and Potassium ferricyanide to water in another. Stir with a plastic spoon until the chemicals dissolve. Mix equal quantities of each solution together in a third container. Unused solutions can be stored separately in brown bottles away from light, but will not last very long once they have been mixed.
2 seperate solutions, 3/4 pumps

notes on electronics and pi

- NEMA17 stepping motor (segor), psu and driver for arduino
- lighting on head
- 3 or 4 pumps: segor membranpumpe = diameter? measure?

tech we need/and building

- old pc and monitor, necessary cables
- table-like base for T.E.H - 2m+ by 70cm - height?
- plastic sheeting over base and on the floor

packing

- pyrites from studio
- power splitter and adapter
- lab power supply
- [small PC and] USB plus all necessary cables
- pumps (middle is outflow) and spares, all tubing and connectors
- chemistry, **scales** and possibly glassware
- slider head and perspex head
- all cogs, drive belt and attachments and spares
- motor, electronics-motor controller, switches, pi+cam, arduino, usb cables, power supply for pi, wire, breadboards, spare stuff
- rocks, books, own publication!, montreal stuff inc. fan thing
- cable ties, tools, spare cables, perspex parts, clamps
- computer junk
- calibration print

- light for head/torch or find usb light

TO GET THERE: side support materials- breeze blocks, distilled water and bottles.

height above rocks of rail should be about 180mm/200mm

usb light?ordered

bootable USB

- /root/rsync2016/livework
- `https://l3net.wordpress.com/2013/09/21/how-to-build-a-debian-livecd/`

TODO:

- any shipping from canadaX
- order: piX, pi-cameraX, motorX, mechanical partsX, steel strutsXS, timing beltX, pulleys/cogs etc.X
- order parts for UK, cmp junk for UKX
- QUESTIONS: nozzles for dripping and mix point for 2 chemistries, brackets and connection materials, any laserprints, modify/ what we strip out from ouroboros.py, final bootable USB, SWITCHES for ends, what to do if gets stuck at end, electronics for pumps and stepper control, distro and i2c for pi

so: transport control, pumps, pc side, arduino, pi, structure, rocks and stuff

pi+cam+power X

two wire interface to

Arduino - add command for hit switches, add extra pump control —–> switches/3x pump controls/motor controller

USB (power also) to PC

PC with bootable USB - new software and redo BOOTABLE