

# Intro til koding og teknologier

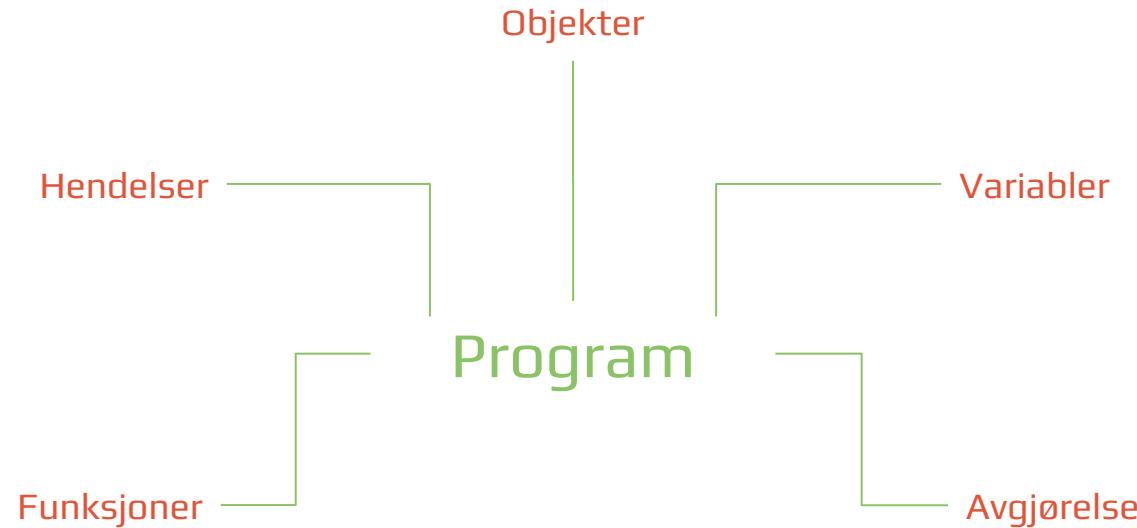
Stian Hansen Superplus  
Bjørn Fjukstad UiT – Norges Arktiske Universitet

# Hva er programmering?

Utforming av et dataprogram som avgjør hvordan en datamaskin, en robot, en mobiltelefon, en vaskemaskin eller annet elektronisk apparatur skal fungere mens programmet er aktivt eller kjører.

- Store Norske Leksikon

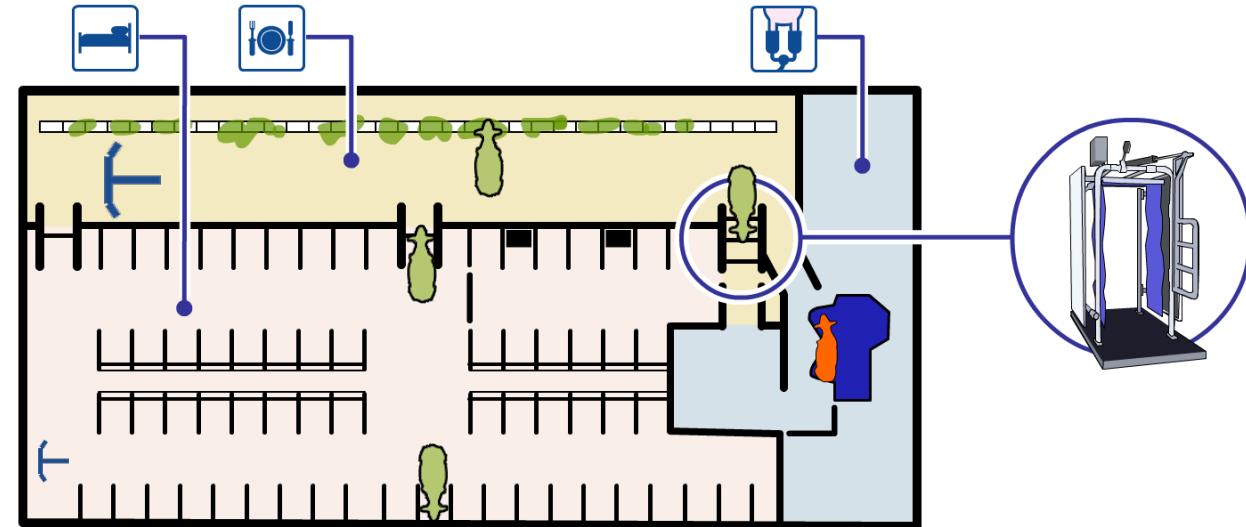
# Hva er programmering?



# Programmet Fjøs

## Objekt Ku

- Funksjon - Gå
- Variabel - Mengde melk
- Hendelse - Sulten
- Hendelse - Trøtt

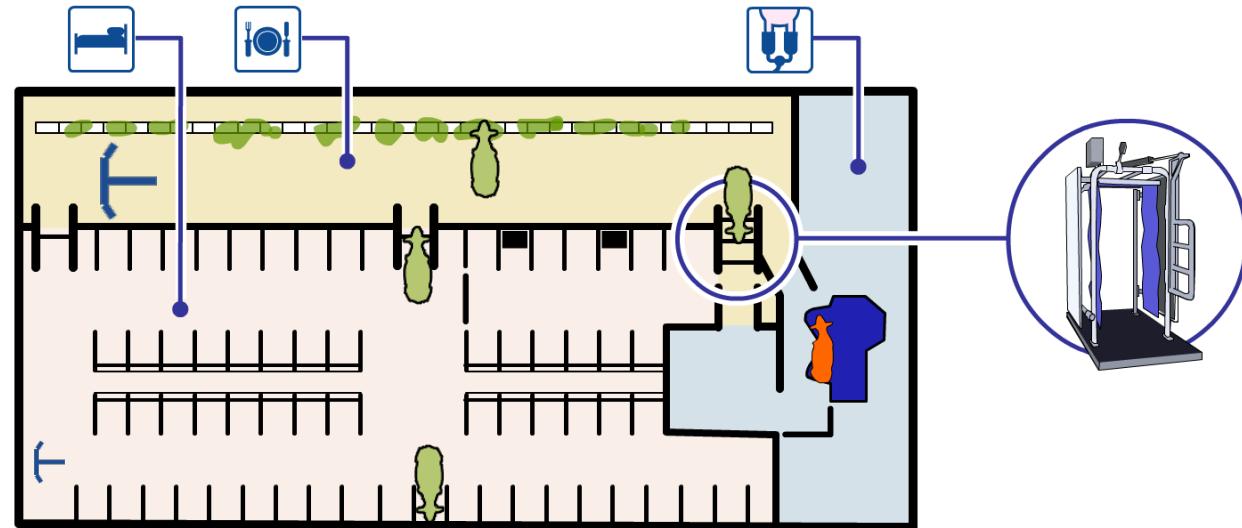


# Programmet Fjøs



Objekt Melkemaskin

- Funksjon - Melk kyr
- Variabel - Mengde melk
- Hendelse - Ku i maskinen

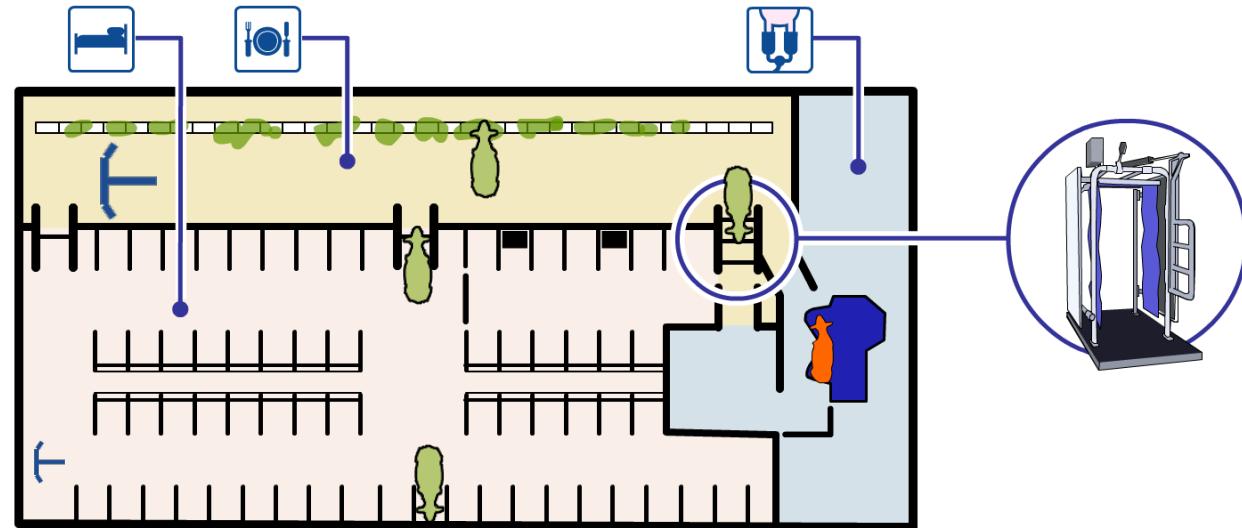


# Programmet Fjøs



Objekt Fôringmaskin

- Funksjon - Distribuer fôr
- Variabel - Mengde fôr
- Hendelse - Tomt for fôr

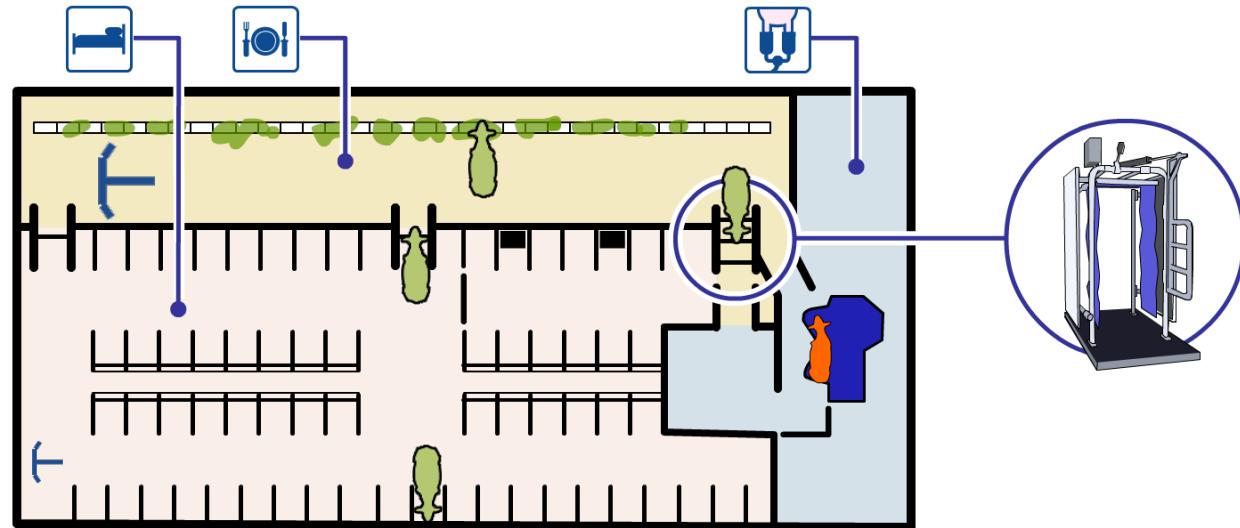


# Programmet Fjøs



## Objekt Utgjødsler

- Funksjon - Rengjør gulv
- Variabel - Mengde møkk
- Hendelse - Fullt av møkk

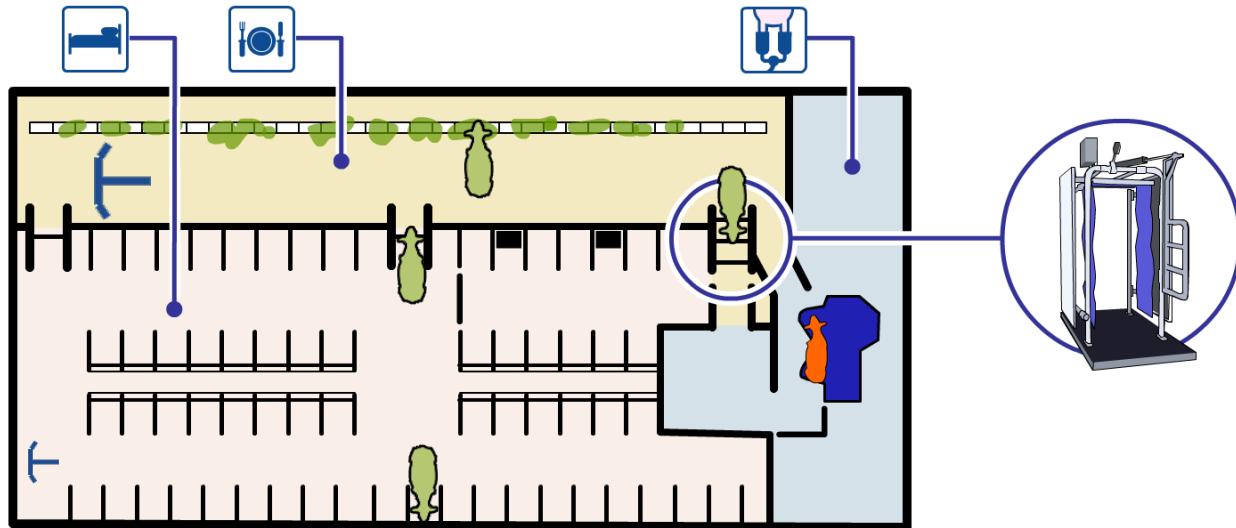


# Programmet Fjøs



Objekt Port til hvile og melking

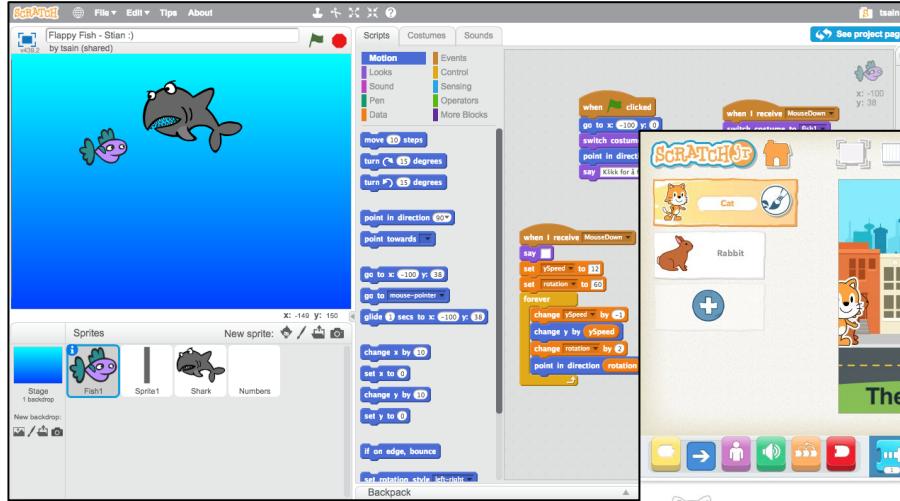
- Hendelse - Ku vil igjennom
- Avgjørelse - Melke eller hvile



# Scratch



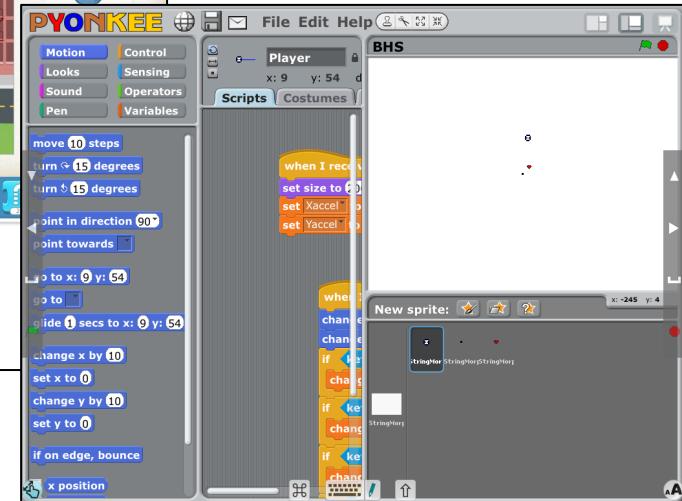
# Scratch



Scratch web/PC/Mac



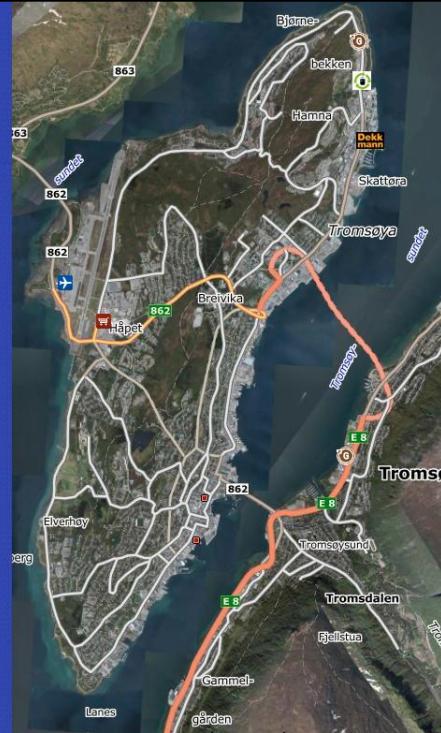
ScratchJr - iPad



Pyonkee (Scratch) - iPad

# MineCraft med ScriptCraft

```
53▼ var tromso = function() {
54    var h = tromso_elevation[y][x] * 0.1 + 1;
55    var h2 = w; // w * 4
56    var h1 = h - h2;
57
58▼   if (h1 > 0){
59    d.box(blocks.dirt, w, h1, w)
60      .up(h1)
61      .box(blocks.grass, w, h2, w)
62      .down(h1);
63  } else{
64    d.box(blocks.water, w, h, w);
65  }
66  d.right(w);
67
68  x++;
69
70  if (x == maxX)
71  {
72    d.left(x*w).fwd(w);
73    x = 0;
74    y++;
75  }
76
77  if (y == maxY)
78  {
79    d.move('tromso');
80  }
81  else
82  {
83    setTimeout(tromso, 50);
84  }
85 }
86
87▼ exports.buildTromso = function(){
88  d = new Drone(self);
89  d.chkpt('tromso');
90  tromso();
91 }
```



# MineCraft med ComputerCraft(Edu)



ComputerCraft og Lua

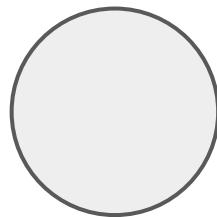


ComputerCraftEdu - Visuell programmering

# Processing

Programmeringsmiljø som gjør det enkelt å bruke kode til å lage tegninger, animasjoner og interaktiv grafikk

```
ellipse(50, 50, 60, 60)
```



```
line(10,10, 40, 40)
```

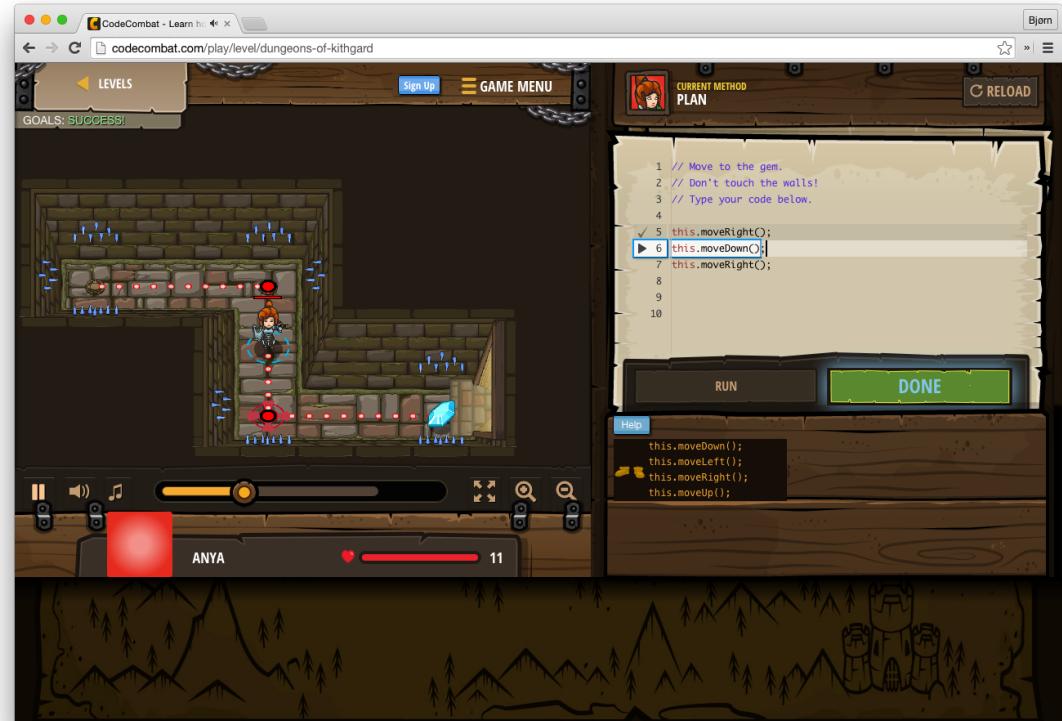


# Python

Kraftig programmeringsspråk som er enkelt å komme i gang med  
Masse biblioteker for både matte og spill

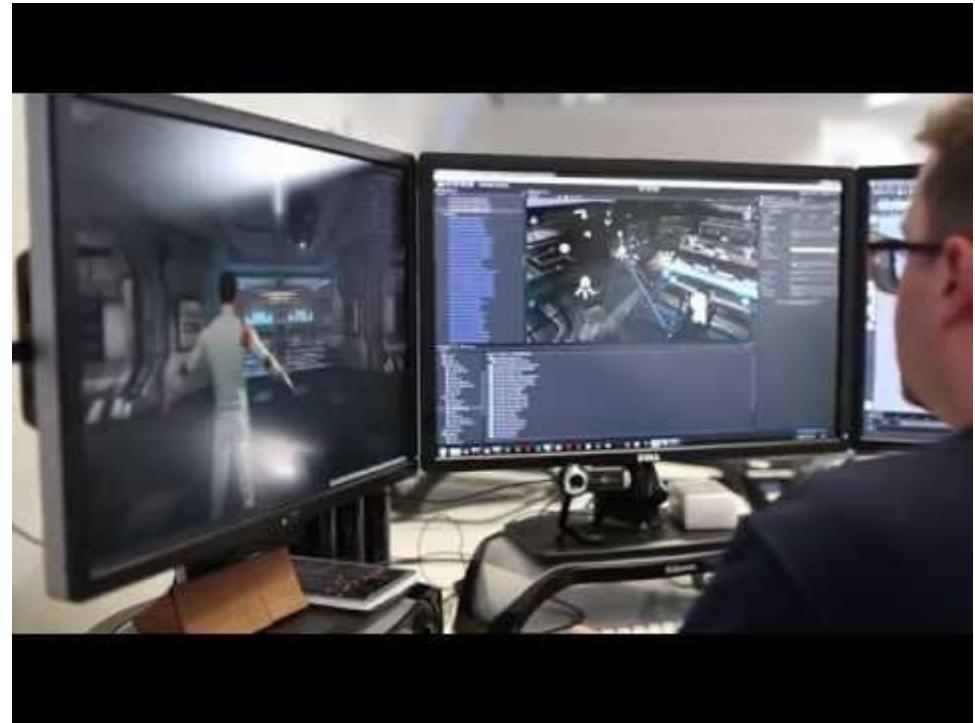
# CodeCombat

Lær deg programmering mens  
du spiller et spill!

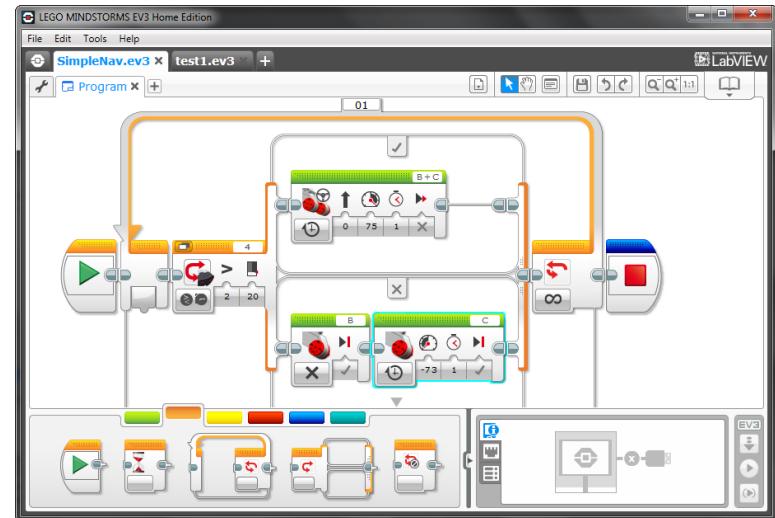
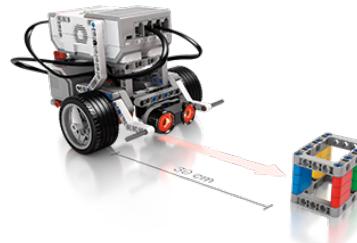


# Unity

Rammeverk for å komme i  
gang med  
spillprogrammering  
  
50/50 skriving og design



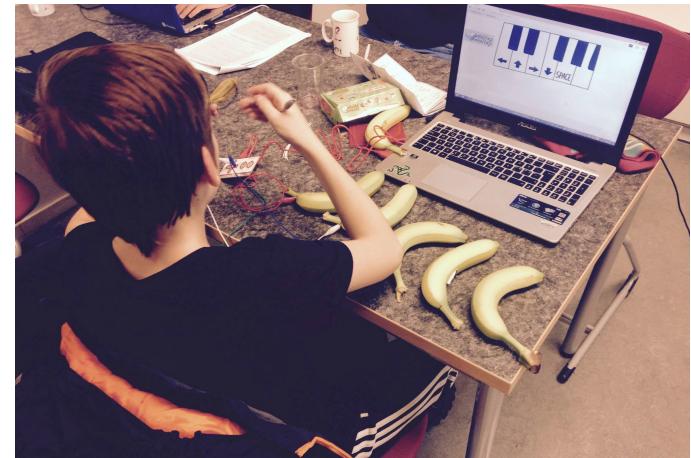
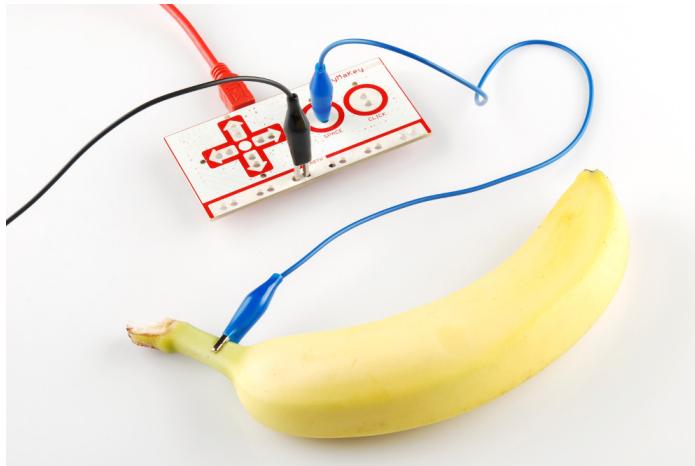
# Lego Mindstorms



# MakeyMakey

Bruk hva som helst til å styre en datamaskin!

Bananpiano? Spille Flappy Bird med en vannmelon?



# LeapMotion

USB-device som gjør det mulig å bruke hva som helst som input til en PC

To små kamera og tre LED-lys



# Arduino

## Open-source elektronikkplatform



### Wireless Arduino Powered Chess

by FunGowRightNow12

3 years ago • 560,042 views

Our goal is to allow people to connect and play board games with each other from anywhere in the world. By combining a physical ...

HD

3:39



### HUGE Lego train coal terminal fully automated by Arduino

by AlmightyArjen

7 months ago • 942,379 views

This video shows three Lego coal trains loading and unloading at a huge Lego coal terminal. Everything is automated by Arduino.

HD

4:05



### Arduino Quadcopter - Phase 2 (Mobile Control)

by Kyle Fieldus

2 years ago • 799,566 views

This is my Arduino quadcopter. It uses one Arduino Uno to control the motors based on information received on the Xbee module.

5:45



### LED Cube 8x8x8 running on an Arduino

by chrmoe

4 years ago • 4,033,870 views

Original video: <http://www.youtube.com/watch?v=6mXM-oGggrM> Hooked the cube up to an Arduino to answer the inevitable ...

0:28



### Star Wars Imperial March with Floppy and Arduino

by Andrea Dylan

2 years ago • 764,638 views

Chek out my new Channel! <https://www.youtube.com/dysten96>.

HD

1:23



### Coke Piano and Launchpad made with Arduino

by Lucas Zanella

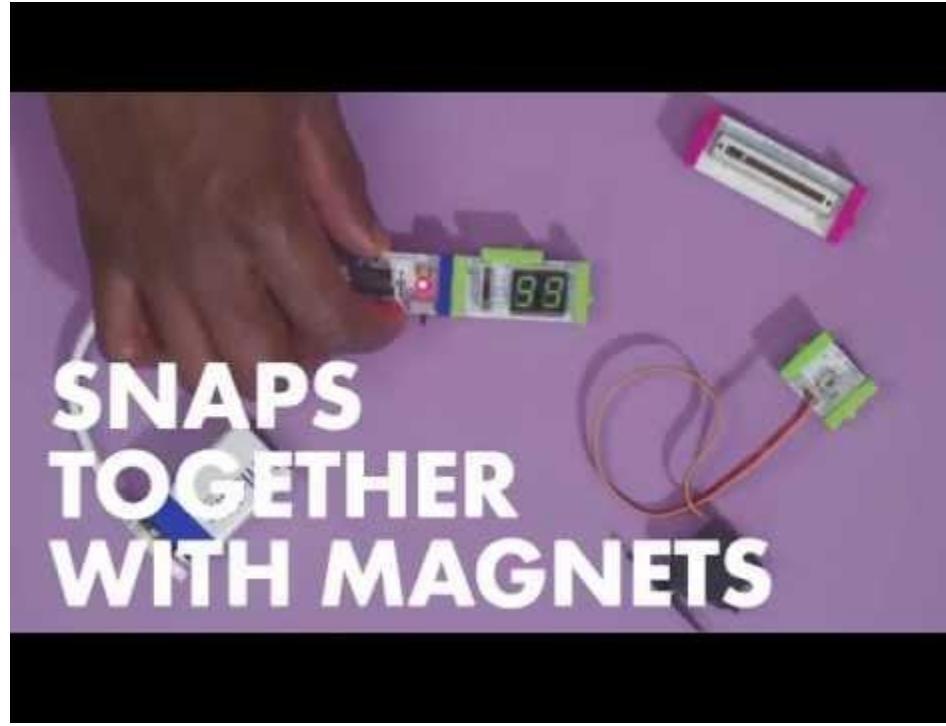
2 years ago • 1,355,932 views

This is my coke piano/launchpad. I've used an arduino mega and a python script programmed by me, with the PyAudio library.

HD

2:44

littleBits



# Oppsummering

Masse artige teknologier og prosjekter

Start på [kidsakoder.no](http://kidsakoder.no) og se hva andre holder på med

# Ressurser

Scratch: <http://scratch.mit.edu>

MineCraft / ComputerCraft / ScriptCraft: <http://minecraft.net/> /  
<http://computercraft.info> / <http://scriptcraftjs.org>

Processing: <https://processing.org/>

Python i utdanning: <https://www.python.org/community/sigs/current/edu-sig/>

CodeCombat: <http://codecombat.org>

Unity: <http://unity3d.com/>

Lego Mindstorms: <http://mindstorms.lego.com>

MakeyMakey: <http://www.makeymakey.com>

Leap Motion: <https://www.leapmotion.com>

Arduino: <http://arduino.cc>

littleBits: <http://littlebits.cc>