Physical Computing with App Inventor

David Kim

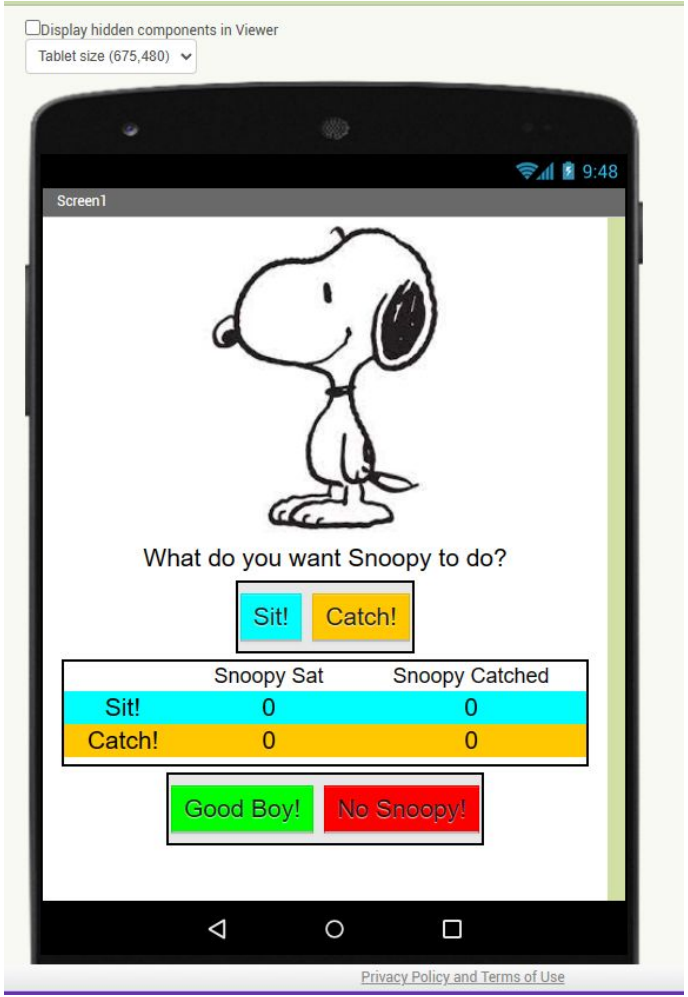
App Inventor

A **free open-source** web platform that allows young people to create mobile applications.

Backed by **10+ years of research** from MIT and Google.

After just 1 year of learning, engages students as creators of technology, not just consumers.

Helps students activate **effective change** in their communities.




How App Inventor Works
Creating a dice app in one minute


Dynamics


HD-03

micro:bit

Cutebot Demo

MIT APP INVENTOR

Sensor

Sensor

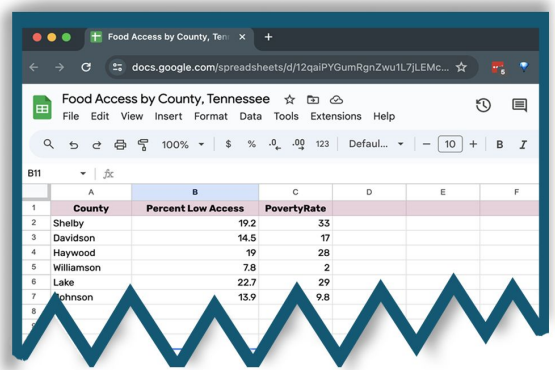
Internet of Things

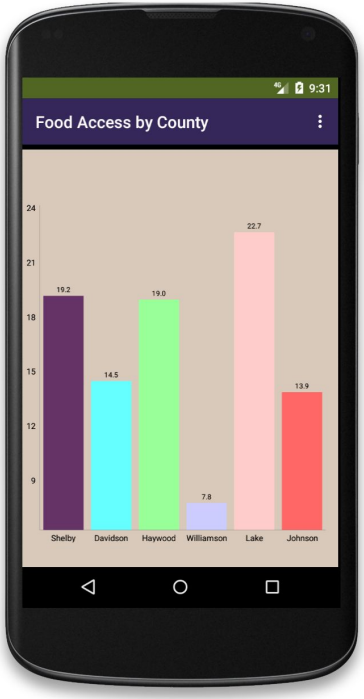
Sensor

Internet of Things

Data Science

MIT App Inventor's Mobile Data Science Toolkit





RAISE Initiative
Responsible AI for Social Empowerment and Education

micro:bit

https://drive.google.com/drive/folders/1MfFAdQqUjfiLsqjXcwjOxeUjB6qnBpwC

RAISE Initiative
Responsible AI for Social Empowerment and Education

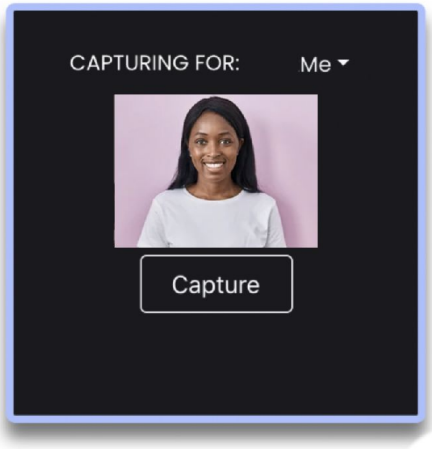
Brain

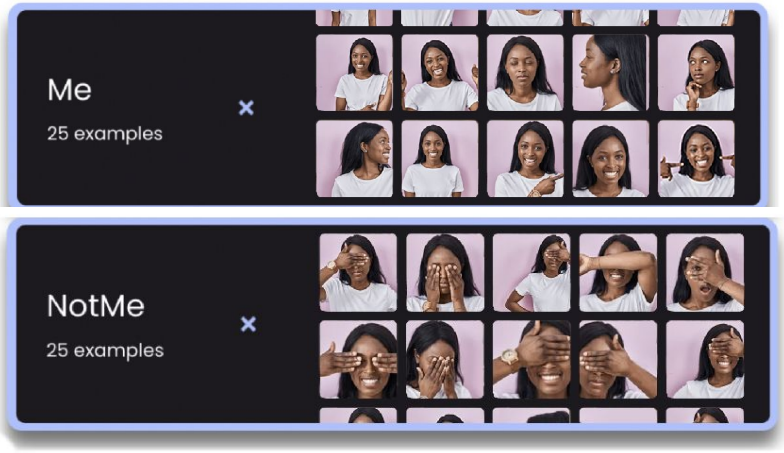
Sensor

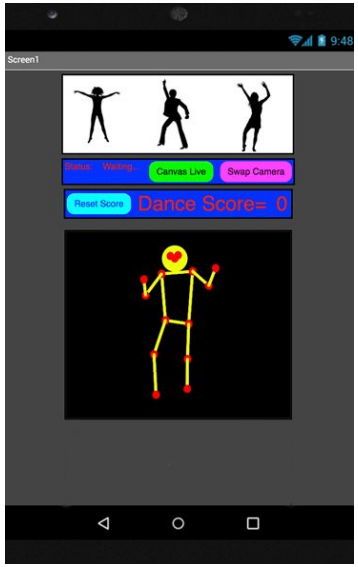
Recognition/Classification

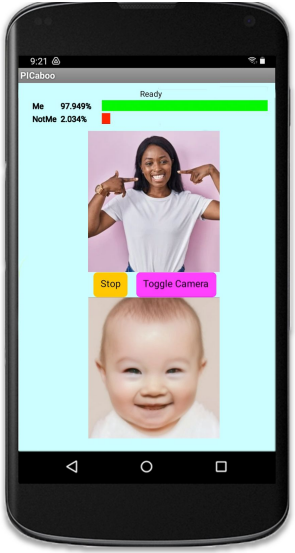
Internet of Things

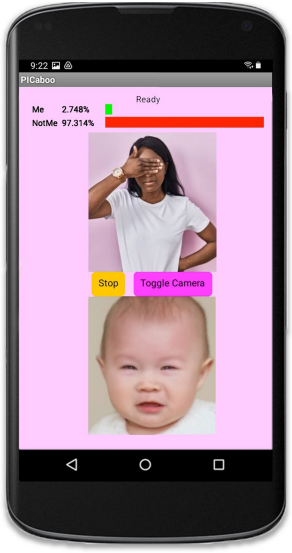
Data Science

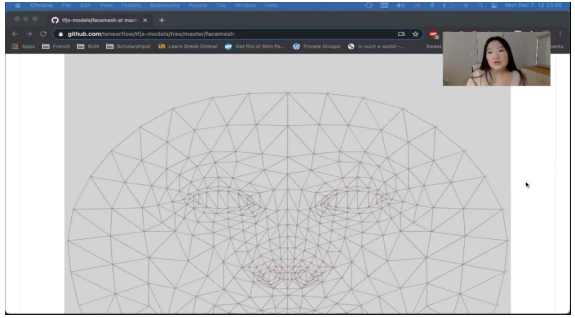

CAPTURING FOR:
Me
Capture

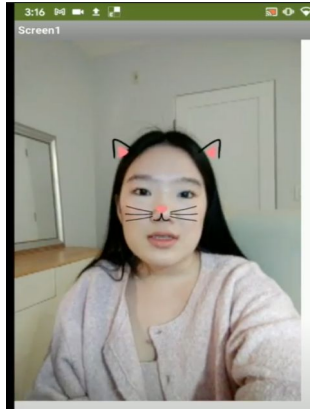

Me
25 examples
NotMe
25 examples


Screen1
Canvas Live
Swap Camera
Reset Score
Dance Score= 0


PICaboo
Ready
Me 97.949%
NotMe 2.034%
Stop
Toggle Camera


PICaboo
Ready
Me 2.748%
NotMe 97.314%
Stop
Toggle Camera




Screen1

Brain

Sensor

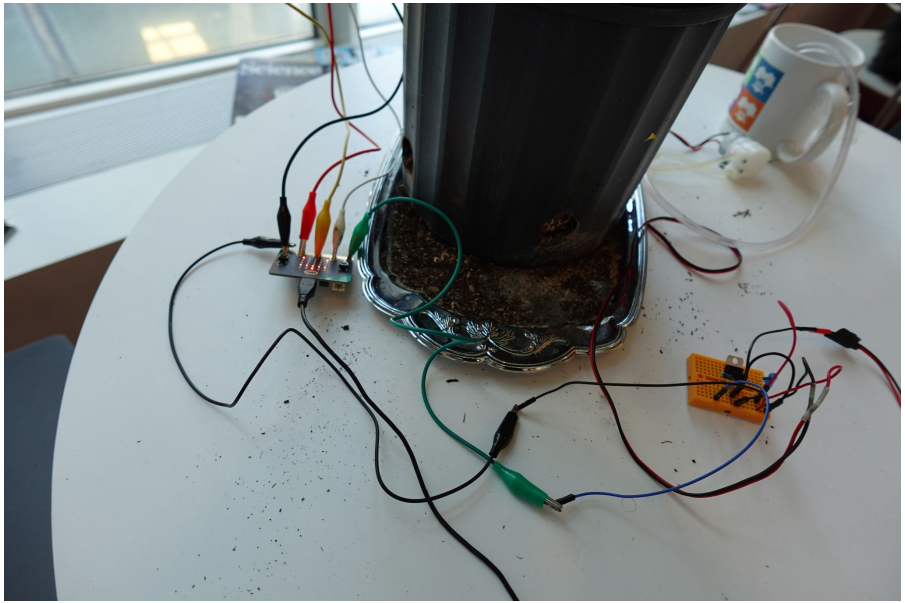
Recognition/Classification

Conversational AI

Internet of Things

Data Science

Plant GPT



Plant GPT

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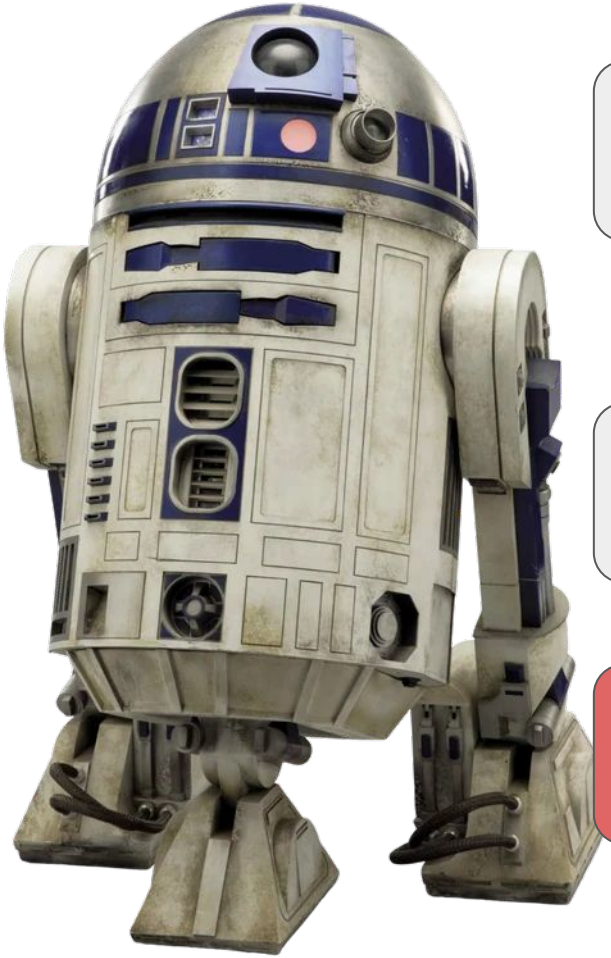
micro:bit

XGO Demo

MicroBlocks

MIT APP INVENTOR



Brain

Sensor

Physical Movement

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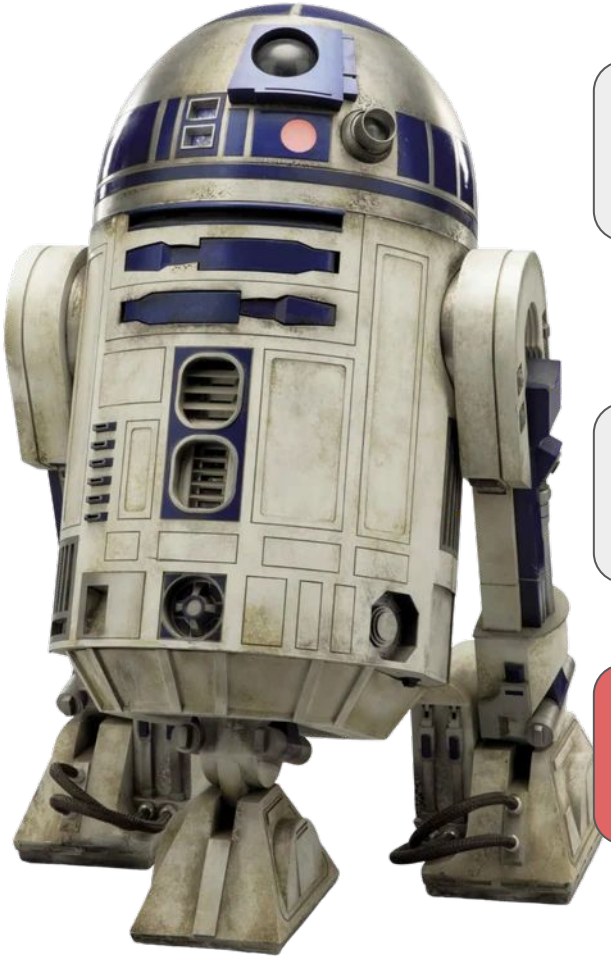

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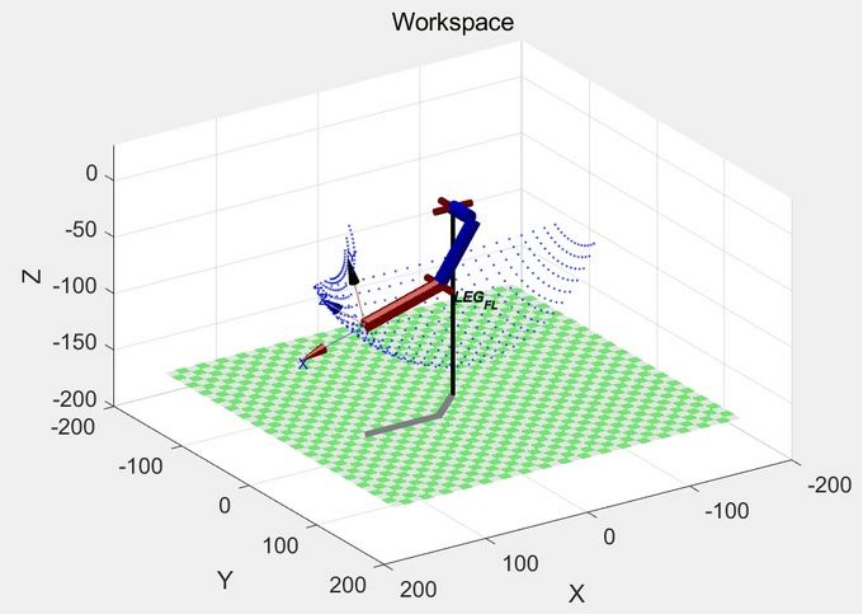
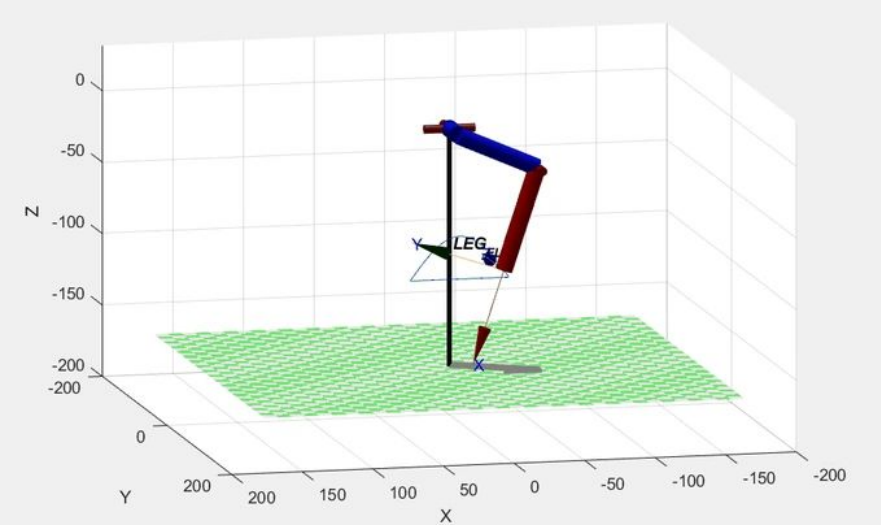
Physical Movement

Mechanics


Workspace
0
-50
-100
-150
-200
Z
-200
-100
0
100
200
Y
200
100
0
-100
-200
X
LEG FL


0
-50
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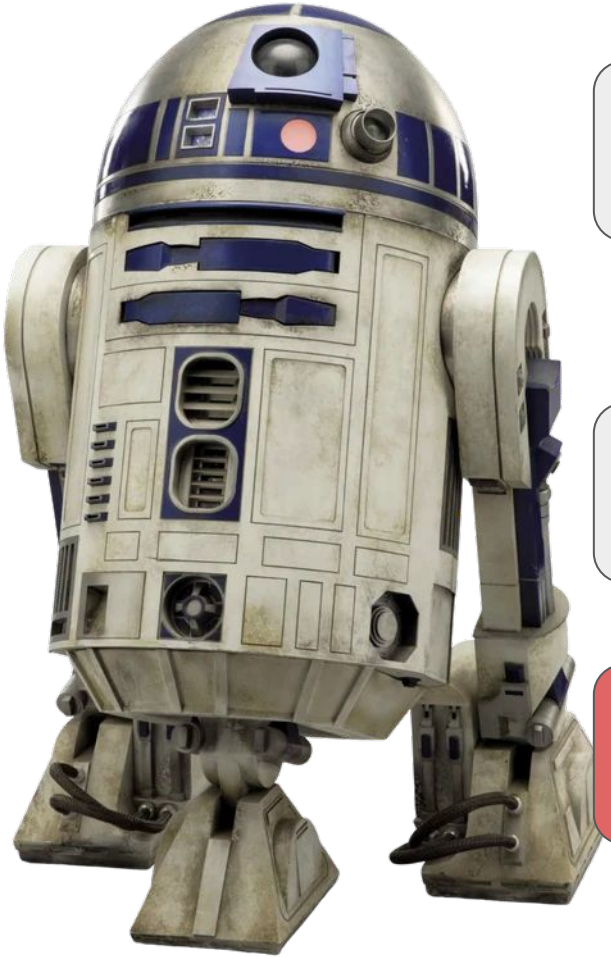
-150
-200
X
LEG FL



Brain

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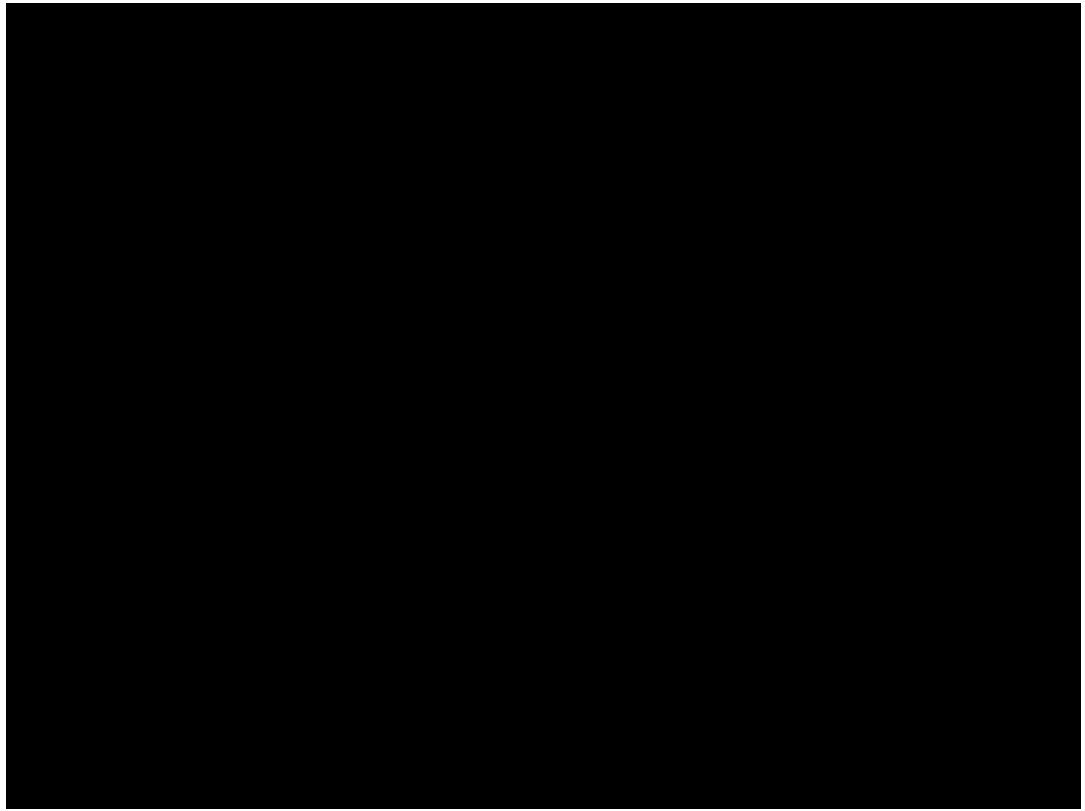
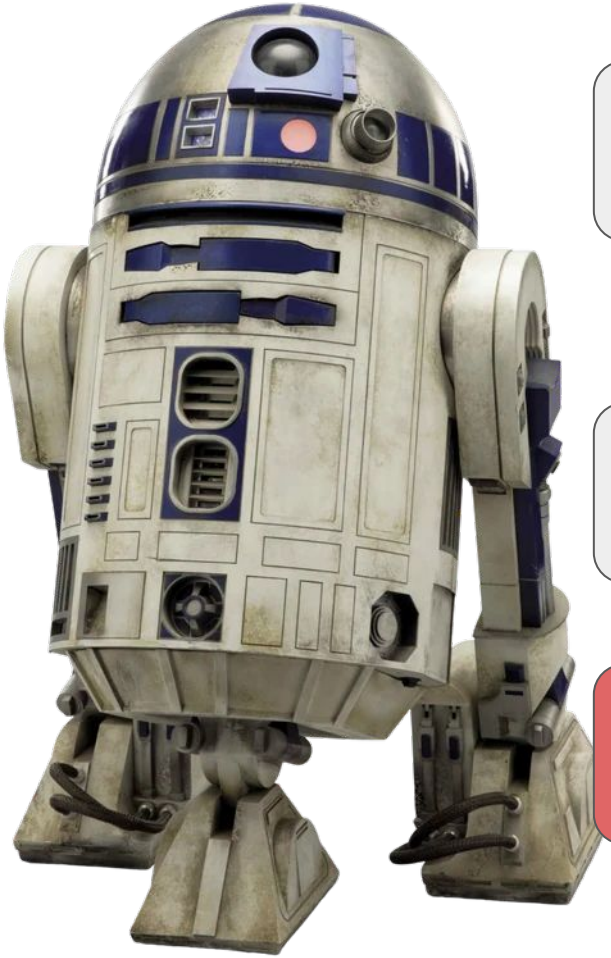
Physical Movement

Mechanics

Materials

Drone





Brain

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Materials

Building Robot

Plant GPT

VIEWPOINT

From Computational Thinking to Computational Action

By Mike Tissenbaum, Josh Sheldon, Hal Abelson
Communications of the ACM, March 2019, Vol. 62 No. 3, Pages 34-36
10.1145/3265747
Comments

VIEW AS: SHARE:

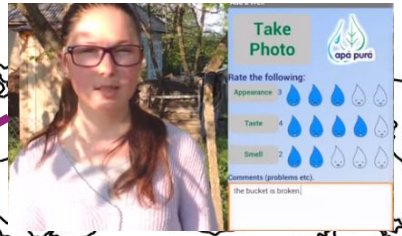
Credit: Boyko Pictures

Computational action, a new framing for computing education, proposes that while learning about computing, young people should also have opportunities to create with computing that have direct impact on their lives and their communities. In this Viewpoint, we outline two key dimensions of computational action—computational identity and digital empowerment—and further argue that by focusing on computational action in addition to computational thinking, we can make computing education more inclusive, motivating, and empowering for young learners. Learners have the capacity to develop computational products that can have authentic impact in their lives from the moment they begin learning to code, all they need is to be situated in contexts that allow them to do so.

Too often, K-12 computing education has been driven by an emphasis on kids learning the "fundamentals" of programming. Even more progressive CS education that centers around the development of learners' computational thinking has largely focused on learners understanding the nuanced elements of computation, such as variables, loops, conditionals, parallelism, operators, and data handling.[10] This initial focus on the concepts and processes of computing, leaving real-world applications for "later" runs the risk of making learners feel that computing is not important for them to learn. It begs the question far too many math or physics students have asked, "When will we use this in our lives?"[1]

…, young people should also have opportunities to create with computing that have direct impact on their lives and their communities. …

Computational Action




THE HINDU

Tech girls and the making of the Dharavi code

MUMBAI » MUMBAI LOCAL

MUMBAI, April 10, 2016

Updated: April 10, 2016 01:03 IST

Nawneet Ranjan helps girls of Nayabasti learn computers at the Dharavi Diary school in Mahim, Mumbai. Photo: Anurangau Roy Chowdhury.

The Hindu

Robotic Rover for Chemical Sensing


Rebuild
the
world