

SpeD 2017

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# SPEECH RECOGNITION AND ITS EDUCATION APPLICATIONS

Lucian-Petru Țucă, Adrian Iftene

Faculty of Computer Science

“Alexandru Ioan Cuza” University of Iasi

{lucian.tuca, adiftene}@info.uaic.ro

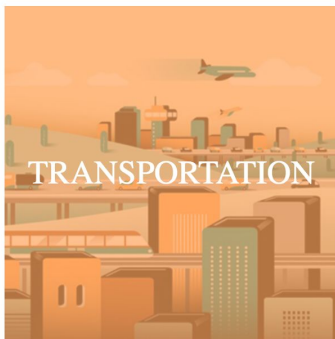
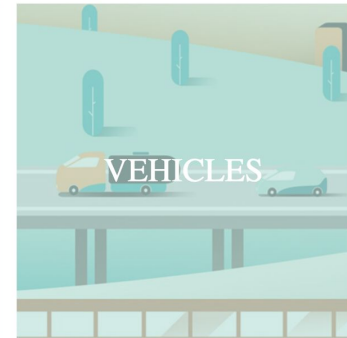
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# Identified problem

An uneducated, unprepared, unaccustomed population that will be faced with a major breakthrough (IoT) that will affect their daily life (home, commute, traffic, office ...) will not benefit entirely from it and there are chances that it (IoT) will cause more harm than good.

# Motivation



## Proposed solution

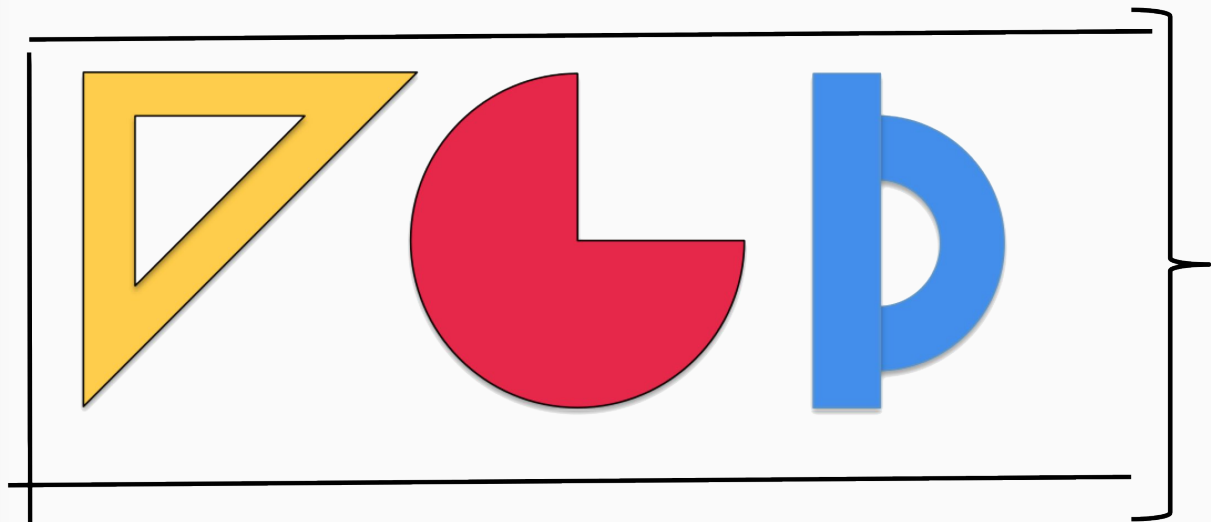
*“If you are planning for a year, sow rice; if you are planning for a decade, plant trees; if you are planning for a lifetime, educate people.”*

Chinese proverb

## Proposed solution

Subliminally educate the young about Internet of Things by having them contact technologies and practices IoT specific within their education system.

Voice  
Geometry  
Painter



# Voice Geometry Painter. Speech recognition - API analysis

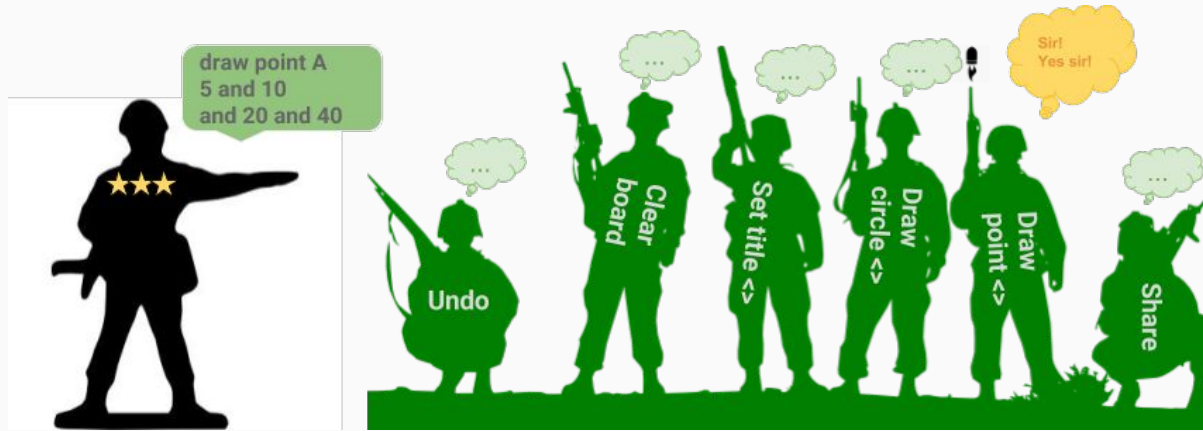
1. Google Speech API
  - a. best performance
  - b. expensive SaaS
2. IBM Bluemix Speech-to-Text
  - a. poor performance
3. Kaldi
  - a. open source
  - b. hard to install and configure
  - c. training data sets are very expensive



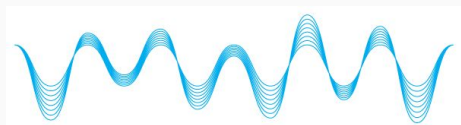
# Voice Geometry Painter. Commands module

Command: *predicate* + *subject* + *identifier* + *coordinates*

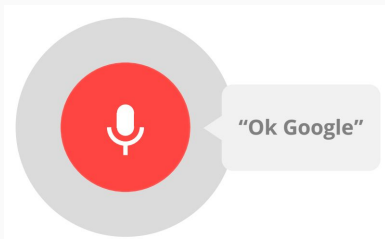
e.g. **draw** line **AB** 5 and 7 and 20 and 11



# Voice Geometry Painter. Speech logic module



1: Speech to text

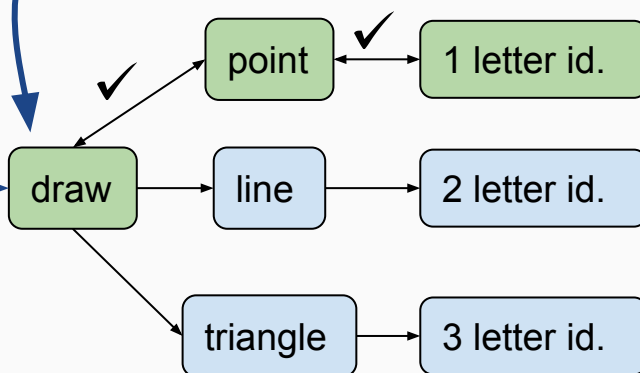


3: Best match

<u>draw point aye</u>	90%
draw point A	80%
draw prone A	56%
.....	
interim results	

Commands
draw point A 5 and 10
draw line AB 5 and ...
clear board
zoom in
download
share on dropbox
undo

2: Build state machine

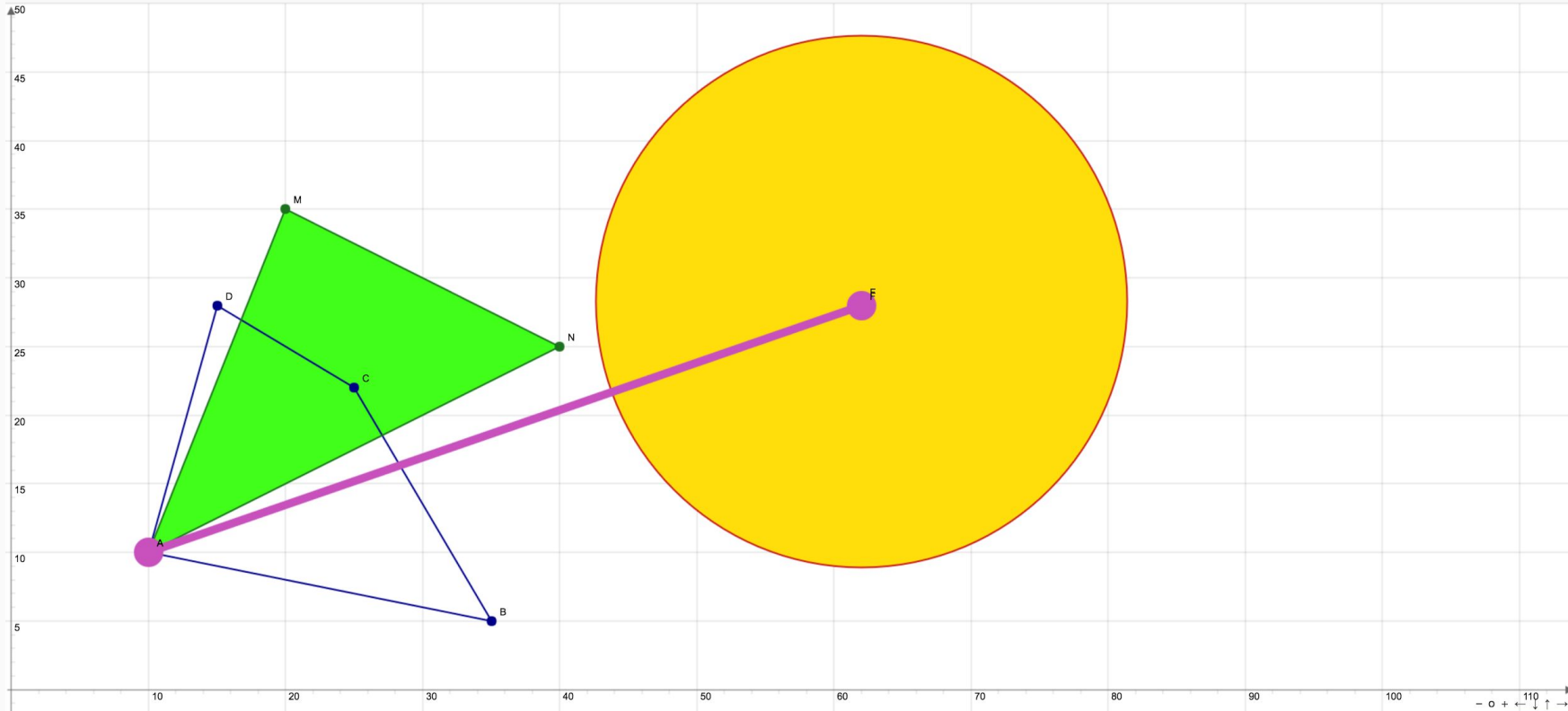


5: Choose best translation



# Voice Geometry Painter. Drawing context module. Demo

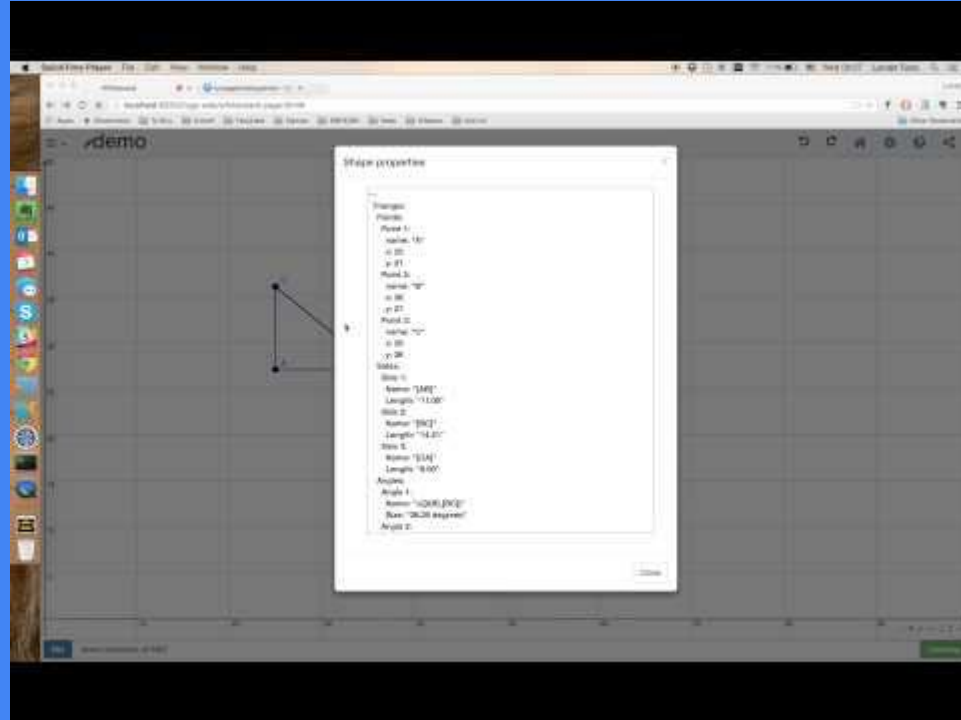
Whiteboard



Go! draw line AF 10 + 10 + 62 + 28

Listening

# Demo.



# Great prototype!

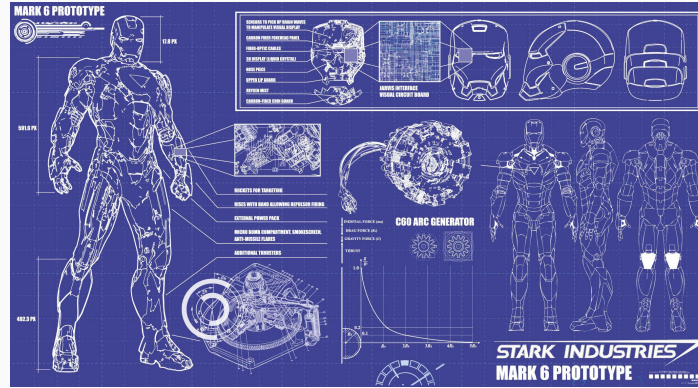
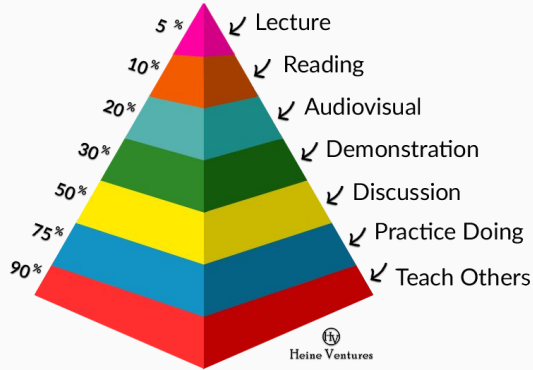


**But let's not forget about our goal:**

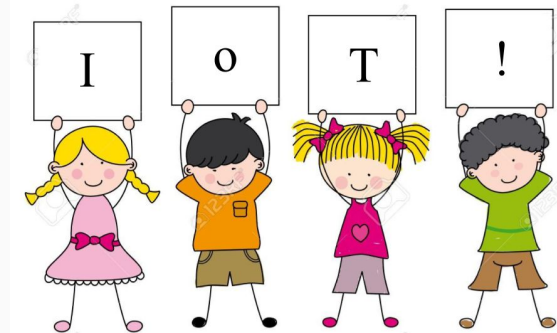
Subliminally educate the young about Internet of Things by having them contact technologies and practices IoT specific within their education system.

# Psychological analysis and conclusions

## THE LEARNING PYRAMID



sassydealz.com



Learning pyramid: <http://heineventures.com/wp-content/uploads/2015/01/the-learning-pyramid.png>

Ironman blueprint: <https://s-media-cache-ak0.pinimg.com/originals/96/33/40/9633403ebfe2e0fb2c711508d7b421f5.jpg>

Ironman: [http://images1.wikia.nocookie.net/\\_cb20120510003233/losvengadores/losheroes/es/images/6/65/Games\\_module\\_character\\_avengers.png](http://images1.wikia.nocookie.net/_cb20120510003233/losvengadores/losheroes/es/images/6/65/Games_module_character_avengers.png)

Crafting: [https://b6c18f286245704fe3e9-05e2055f4cd9122af02914269431c9f6.ssl.cf1.rackcdn.com/7880520\\_lorax-toilet-paper-roll-craft-for-kids-dr\\_lb4830f8f.jpg](https://b6c18f286245704fe3e9-05e2055f4cd9122af02914269431c9f6.ssl.cf1.rackcdn.com/7880520_lorax-toilet-paper-roll-craft-for-kids-dr_lb4830f8f.jpg)

Thank you.