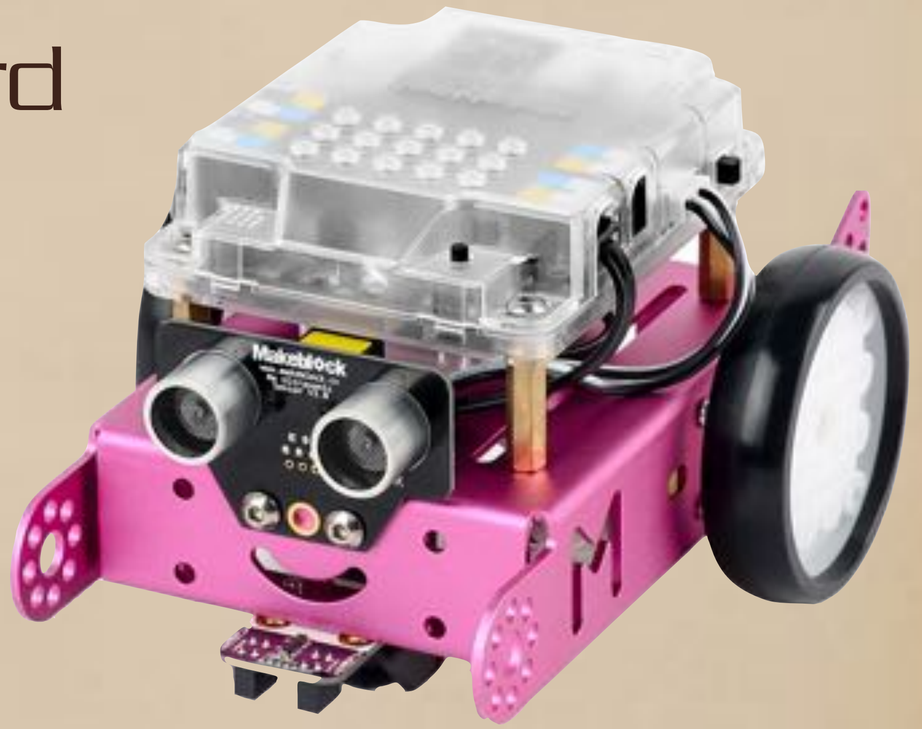
Hello & Welcome

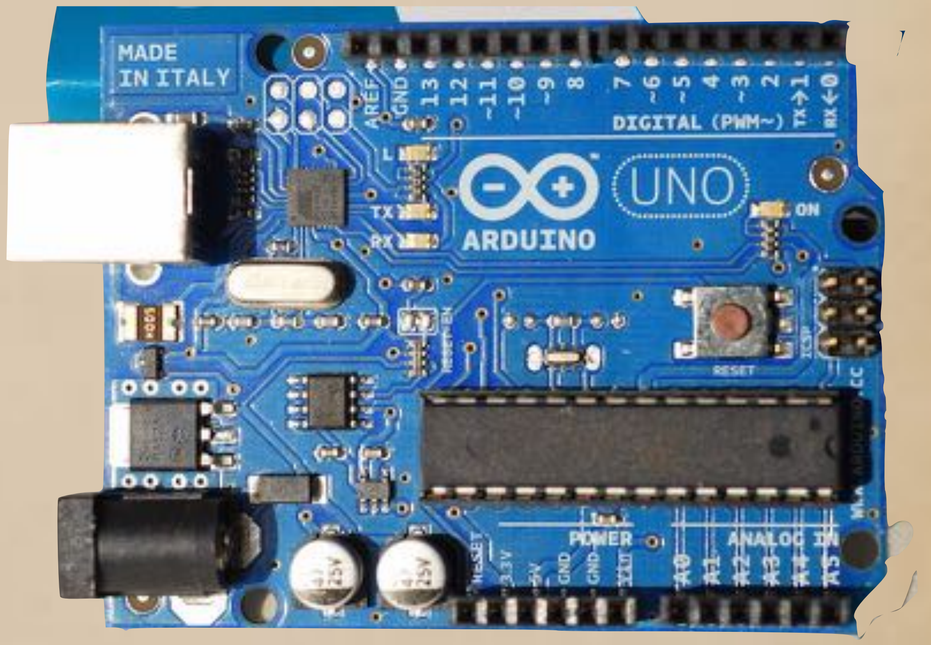
June 23rd



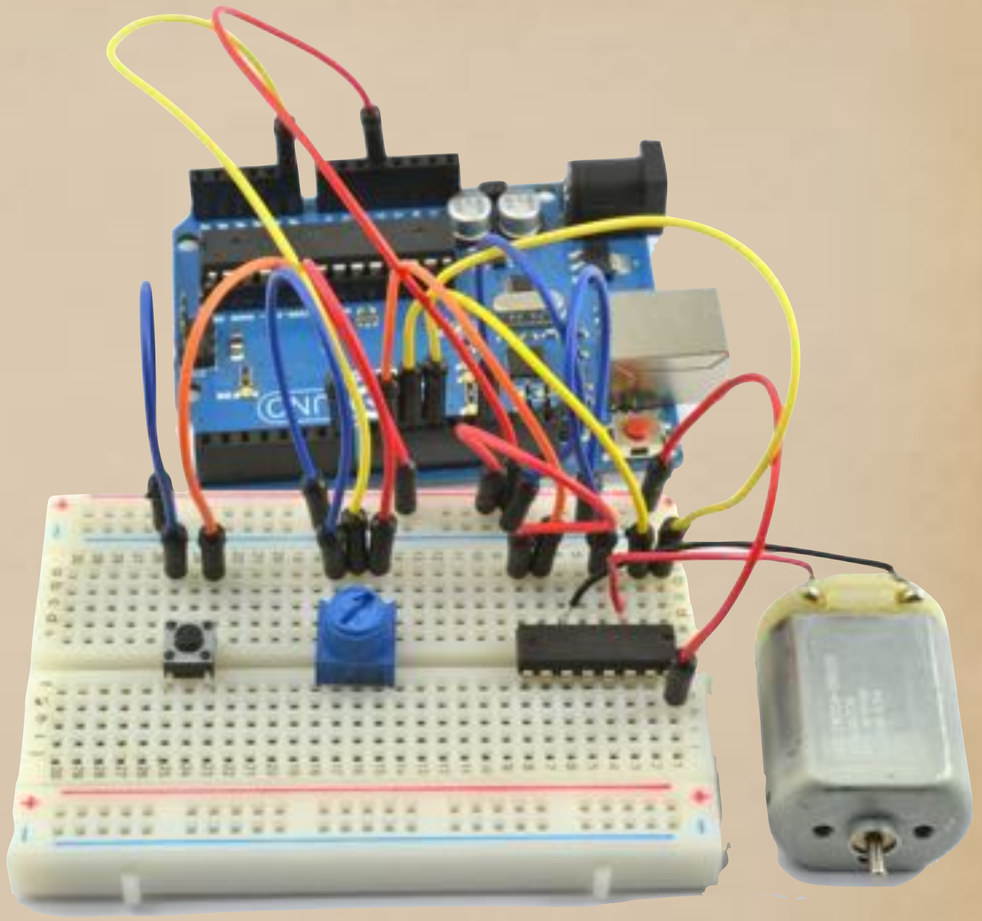
I'm an mBot Robot

- My name is Mark Hanna, I live in Sierra Vista
- I am not a teacher or public speaker,
  as you will soon see.
- I have an interest in small robotics, good exercise
  for your brain and kids are great at them.
- Today we will learn about an affordable Robot
  and more.

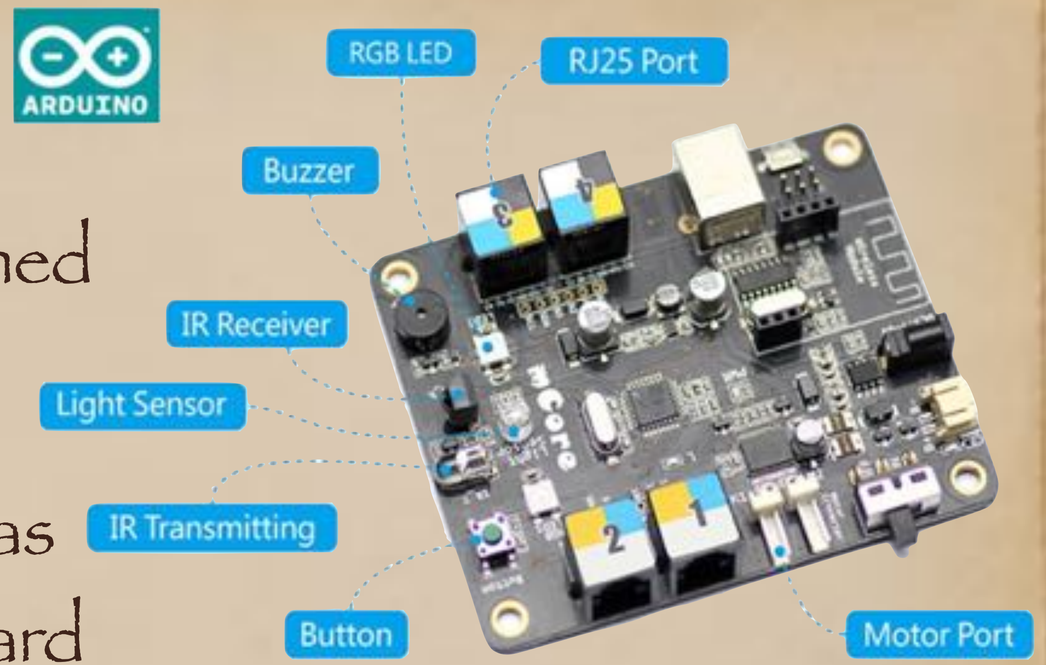
- Raise your hand if you know what this is?



- Raise your hand if you know what this is?
- Its an Arduino controller board, very popular with hobbyists these days.
- It can control many things, small circuits, servos, motors, sensors and more. Many robots are based on this controller board.

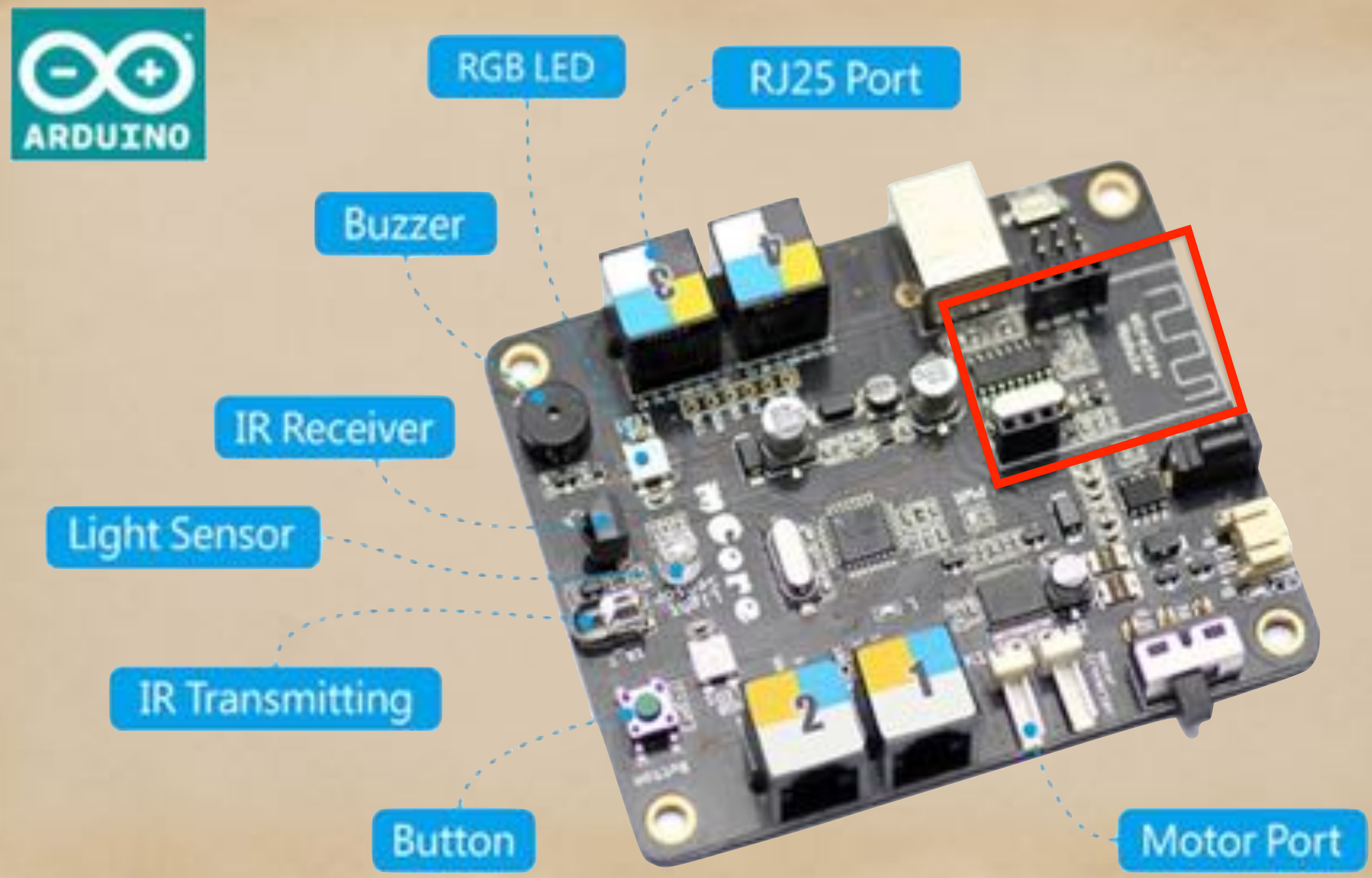


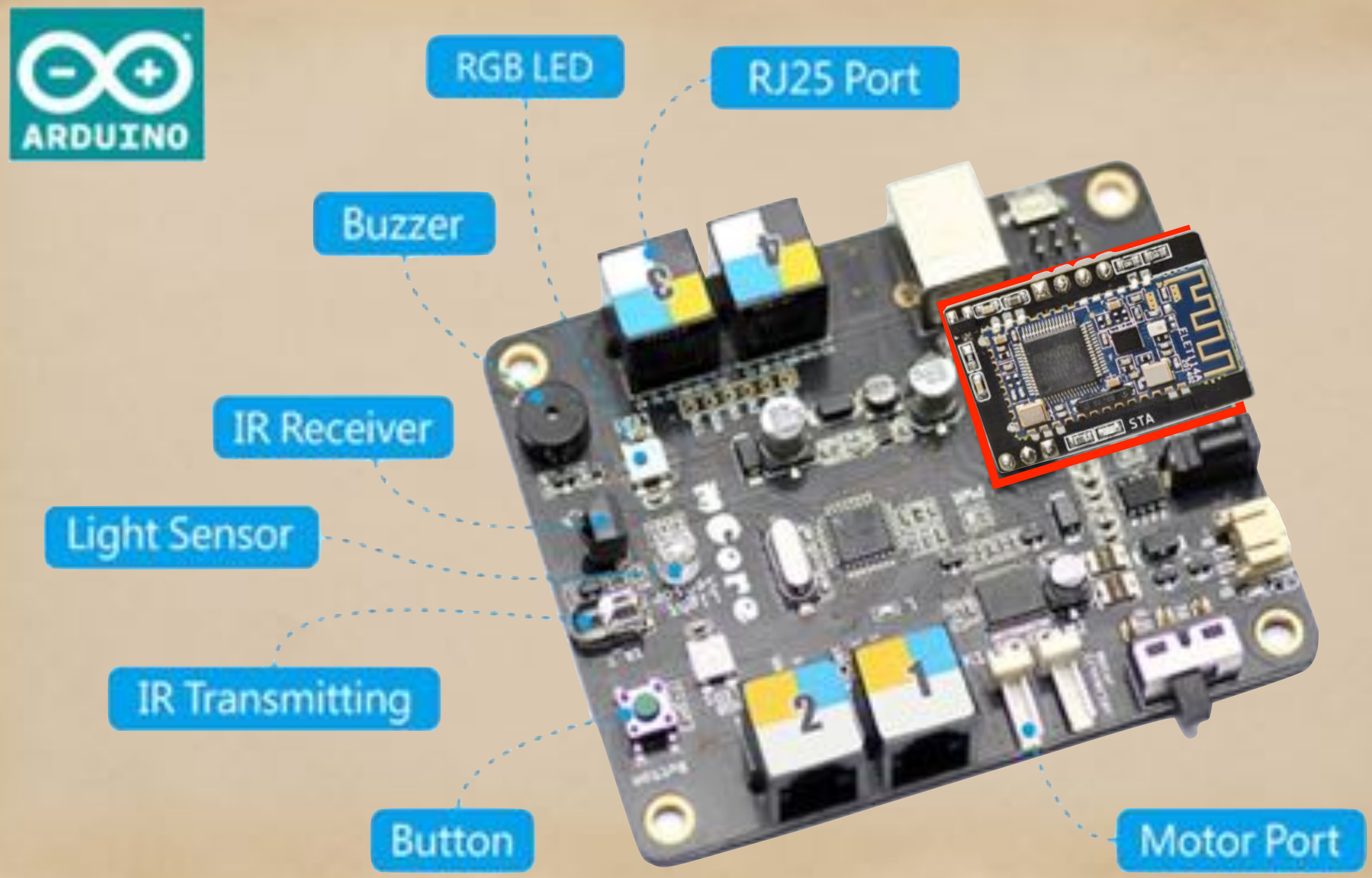
- This is a Makeblock, mCore controller, based on Arduino, but better, its designed for education and small robotics.



- Its different from an Arduino in that it has programable sensors & more on the board and plug and play connectors.

- Both boards are low voltage and safe for kids (less than 9 volts), we will be concentrating on the mCore board from MakeBlock.


ARDUINO
RGB LED
RJ25 Port
Buzzer
IR Receiver
Light Sensor
IR Transmitting
Button
Motor Port


ARDUINO
RGB LED
RJ25 Port
Buzzer
IR Receiver
Light Sensor
IR Transmitting
Button
Motor Port
STA

- Robotics can be as simple or complicated as you want it to be.
- Please write down and hold questions until the end.
- But first a few images to get us stated.

Showing most relevant results. See all results for lego mindstorm ev3.

Sponsored

Winning Design!: LEGO MINDSTORMS EV3 Design Patterns for Fun and Competition Jun 11, 2017

$29.99 - $30.01 prime

Paperback... More

4.5 out of 5 stars ▾ 8

Sponsored

Beginning LEGO MINDSTORMS EV3: (B&W) Feb 3, 2014

$27.99 - $32.93 prime

Paperback... More

2.5 out of 5 stars ▾ 8

LEGO MINDSTORMS EV3 31313 Robot Kit for Kids

$341.59

FREE Shipping on eligible orders

4.5 out of 5 stars ▾ 641

Lego Mindstorm Ev3 Core Set 45544 - New

$499.90 prime

FREE Shipping on eligible orders

4.0 out of 5 stars ▾ 26

Amazon's Choice for "lego mindstor...

Lego Ev3 Expansion Set 45560 - New

$149.94 prime

FREE Shipping on eligible orders

Only 2 left in stock - order soon.

4.0 out of 5 stars ▾ 27

LEGO Mindstorms EV3 Intelligent Brick

$199.95 prime

FREE Shipping on eligible orders

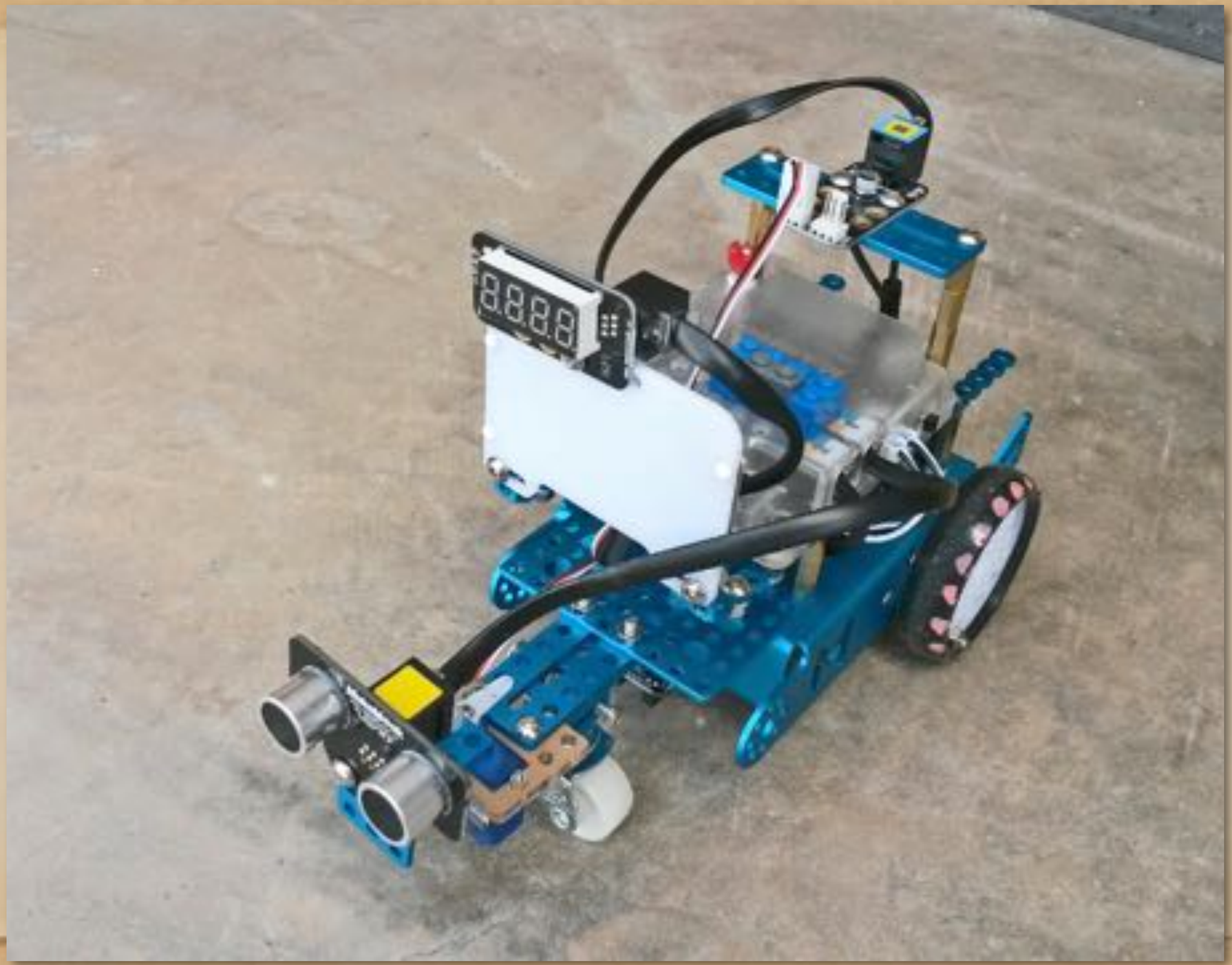
4.5 out of 5 stars ▾ 7

- mBot, usually about $95. at Amazon
- Can be found for around $70.
- Very expandable,
- There is a new STEM robot called Cody Rocky that was just released, $99.
- A link to makeblock.com

Expandable

Robot Kits

"Everything begins with an idea."

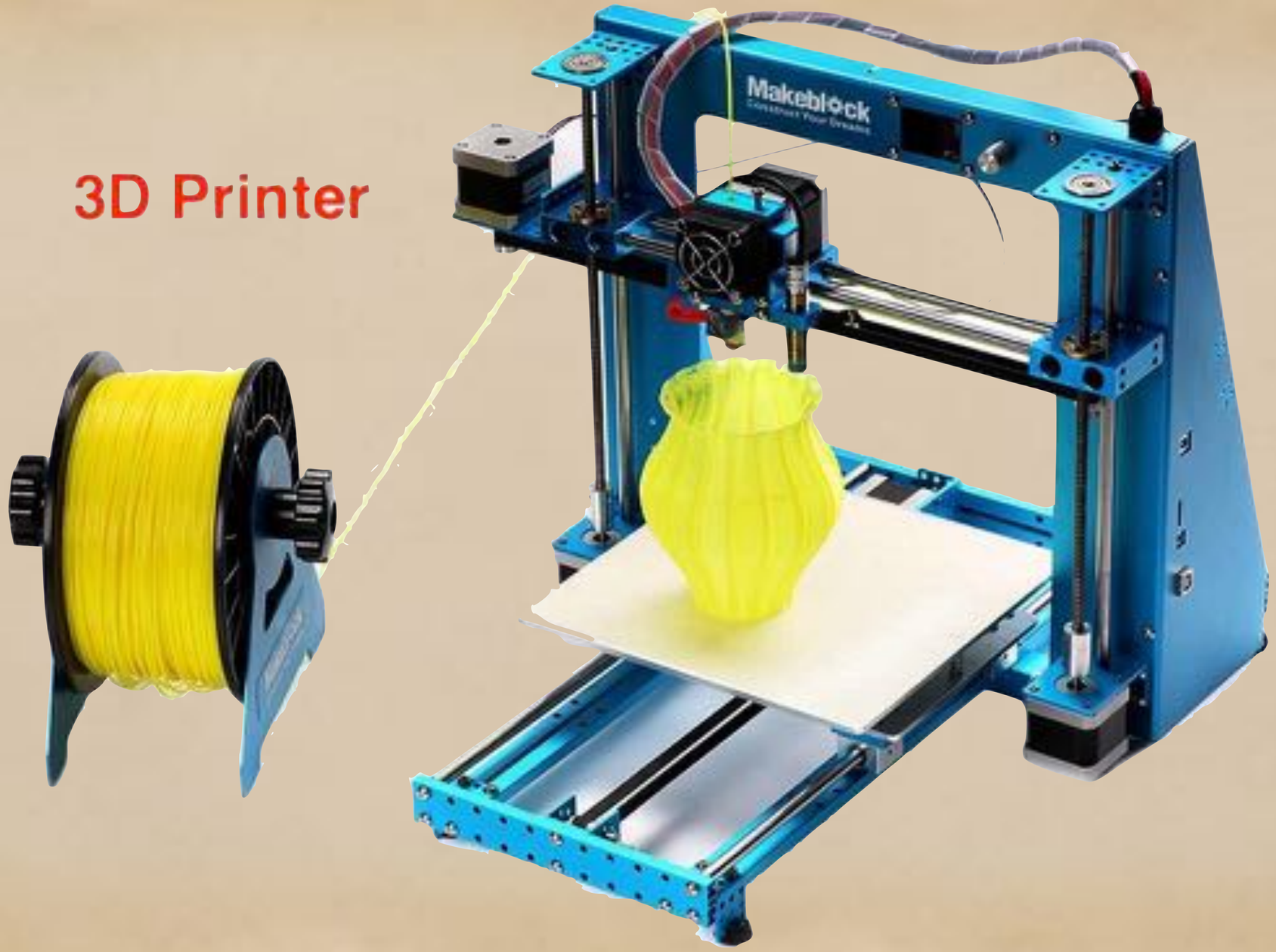


3in1
mBot Ranger
Transformable STEM Educational Robot Kit
mBot
Ranger 3 robots in one

airblock

Modular and programmable
flying robot

3D Printer



Makeblock the Company

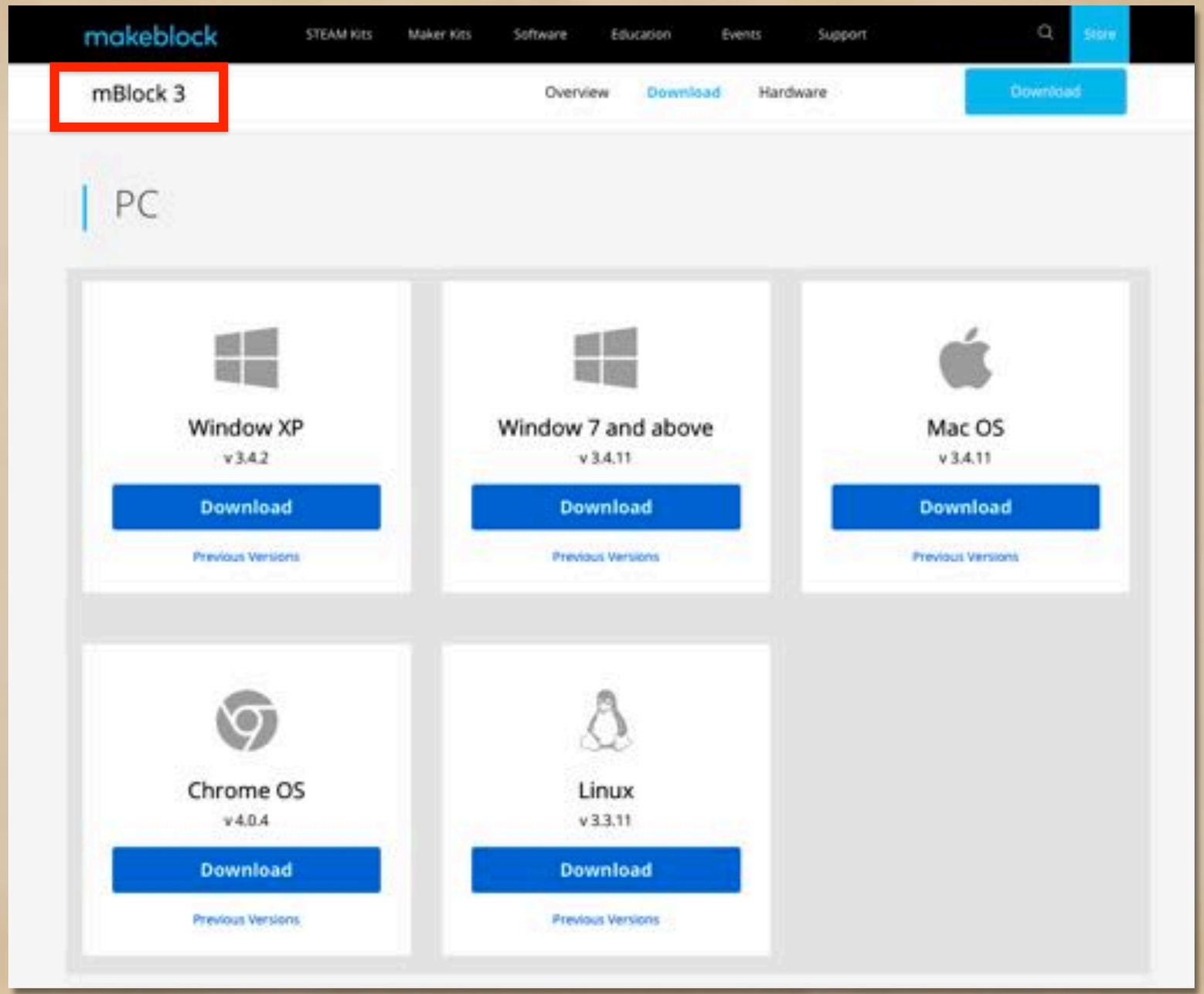
- Small robotics is their focus
- They are growing in leaps and bounds
- They have a high quality product line, and some growing pains.
- Their website is always changing and sometimes confusing but improving all the time.
- Their online Forum is quick to respond & always helpful.

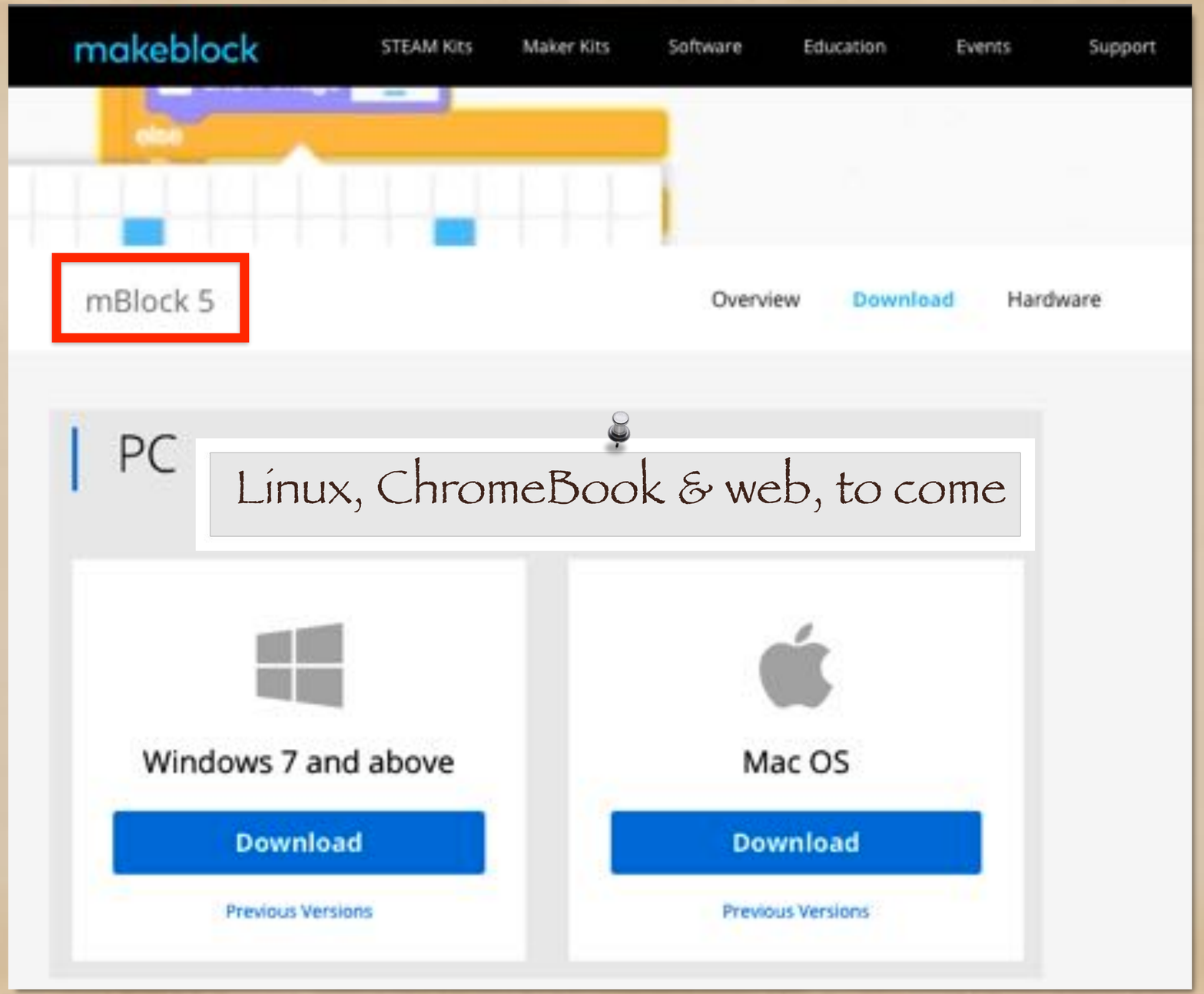
PROGRAMMING

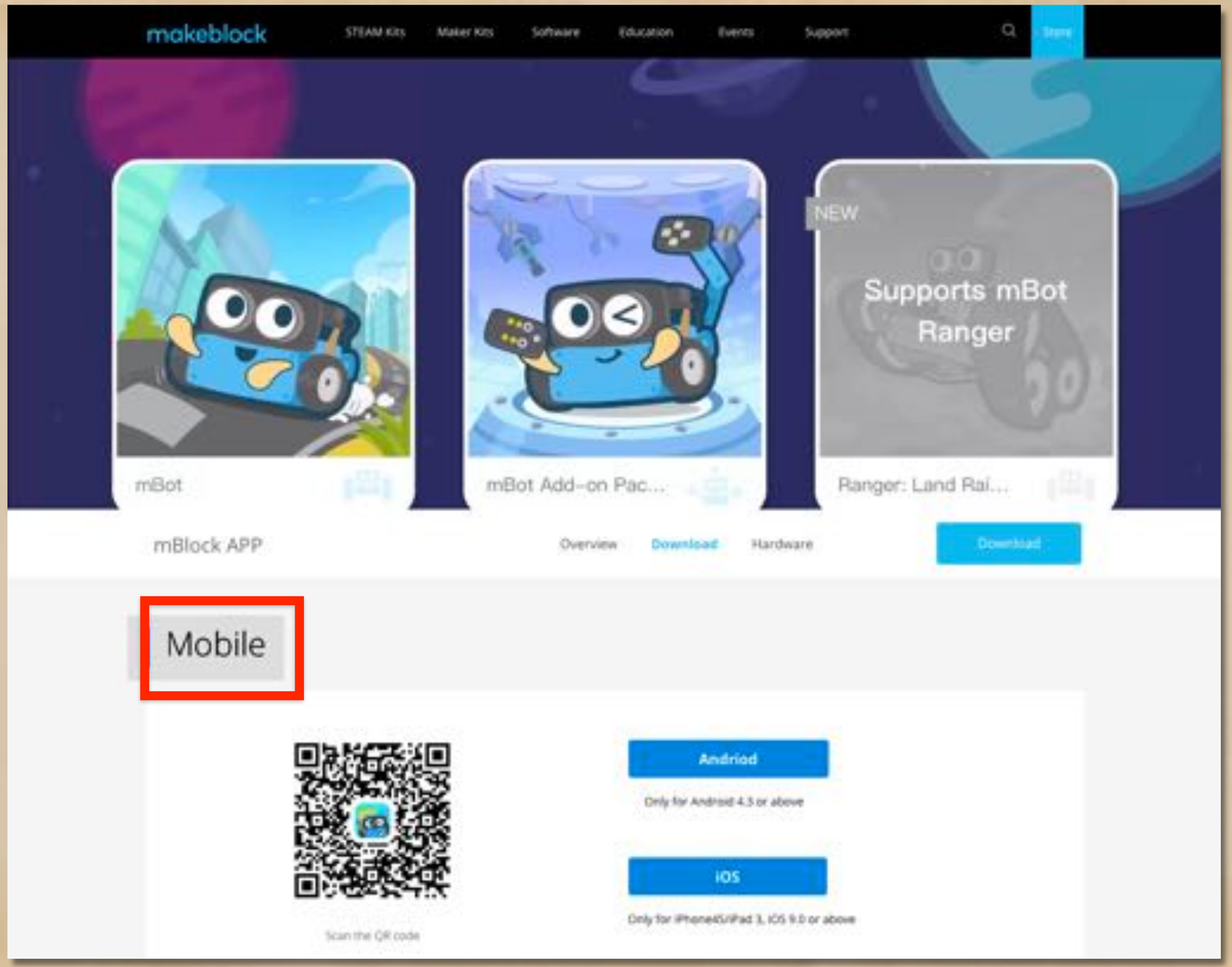
- Which is smarter, a rock or a computer?

PROGRAMMING

- Which is smarter, a rock or a computer?
- Bill Gates touches on (If Then) programming command.
- Why top universities teach drag and drop programming.
- Live example of programming with mBlock 3.
- mBlock 3 (is based on Scratch2) & mBlock 5 (is based on Scratch3), Scratch is made for children by MIT. scratch.mit.edu
- mBlock 5 is near release, based on the new Scratch 3 and Python, Python is a modern and useful language.


makeblock
STEAM Kits
Maker Kits
Software
Education
Events
Support
Store
mBlock 3
Overview
Download
Hardware
Download
PC
Window XP
v 3.4.2
Download
Previous Versions
Window 7 and above
v 3.4.11
Download
Previous Versions
Mac OS
v 3.4.11
Download
Previous Versions
Chrome OS
v 4.0.4
Download
Previous Versions
Linux
v 3.3.11
Download
Previous Versions


makeblock
STEAM Kits
Maker Kits
Software
Education
Events
Support
mBlock 5
Overview
Download
Hardware
PC
Linux, ChromeBook & web, to come
Windows 7 and above
Download
Previous Versions
Mac OS
Download
Previous Versions


makeblock
STEAM Kits
Maker Kits
Software
Education
Events
Support
Store
NEW
Supports mBot Ranger
mBot
mBot Add-on Pac...
Ranger: Land Rai...
mBlock APP
Overview
Download
Hardware
Download
Mobile
Andriod
Only for Android 4.3 or above
iOS
Only for iPhone4S/iPad 3, iOS 9.0 or above
Scan the QR code

Uses PIR - Passive Infrared to detect body heat.
When it detects heat it will trigger the shutter module connected to Port 1 and the Canon camera will take a picture

Works best if you walk across in front of it.
Walking up to it not as good.

It holds the detection result for about 2 seconds before it checks again.

Onboard LED turns Red when someone is detected, and Green when shot taken and all clear (no detection) for 1 second and then LED turn OFF

Also Displays Yes or No on the LED matrix if connected to Port 2

makes a beep so you know detection has started

checks for body heat. 1 for yes, 0 for none

Auto Focus OFF

holds shutter button down for .1 second twice.

After Shutter Release, LED turn green to verify for 1 second then turns LED off

This is 2nd show face request.

1st one (after - set led on board all to red 60) shows Yes if it detects body heat.

The 2nd shows No if it doesn't detect bo

Back | Upload to Arduino | Edit with Arduino IDE

```
#include <Arduino.h>
#include <Wire.h>
#include <SoftwareSerial.h>

#include <MeMCore.h>

MeDCMotor motor_9(9);
MeDCMotor motor_10(10);
void move(int direction, int speed)
{
      int leftSpeed = 0;
      int rightSpeed = 0;
      if(direction == 1){
            leftSpeed = speed;
            rightSpeed = speed;
      }else if(direction == 2){
            leftSpeed = -speed;
            rightSpeed = -speed;
      }else if(direction == 3){
            leftSpeed = -speed;
            rightSpeed = speed;
      }else if(direction == 4){
            leftSpeed = speed;
            rightSpeed = -speed;
      }
      motor_9.run((9)==M1?-(leftSpeed):(leftSpeed));
      motor_10.run((10)==M1?-(rightSpeed):(rightSpeed));
}
double angle_rad = PI/180.0;
double angle_deg = 180.0/PI;
MeBuzzer buzzer;
```

Robot/Camera program used today
Programmed with mBlock 3

send encode mode: binary mode / char mode

recv encode mode: binary mode / char mode

Send

MakeBlock for Kids

- mBot - Educational Robot for STEM
- mBot Robot Kit - One Robot Per Child
- A new way to play with mBot: Ping pong snatch
- mBot play day at Google
- Learning Lab Kobe gives Codey Rocky a first try
- mbot Ranger Starter Robot, 1 Kit 3 different robots

MakeBlock for Kids

- Makeblock Neuron: An Electronic Building Blocks Platform
- How To Code To Fly With Airblock Drone
- How to Assemble mEggbot Step by Step

MakeBlock for Adults

- England starts teaching programming concepts in second grade.
- Don't kid yourself, the kids Robots can be challenging.
- 3D Print a Cup
- Makeblcok Laser Engraver Engraving on Different Materials
- Makeblock mGiraffe 3D Printer Kit

Why am I doing this

- I'm retired from Kitt Peak National Observatory, west of Tucson.
  I find Robots and volunteering more interesting than just sitting around.
  Its good exercise for your mind. (use it or loose it, as they say)
- Its an activity that can only help children learn a skill they can use for the rest of their lives. Computer logic thru Robotics.
- I invite anyone, any age, young or old to work together
  in a group to help each other learn.

Why am I doing this

- Hopefully a few people - families will be interested.
- This slide show is online, so you can watch it again at home.
- If you have any questions, email me, Click Here
- This program will be repeated on July 7 from 10am to 11:45.
  If you have a robot or purchased a robot bring it on July 7th.

Search Around, Use YouTube

- ROBOTS
- There are many choices, read carefully. Does the robot program with a common/ standardized block language, does it show the compiled code, C++, or Python etc? What else can the robot do (expandability), is there good support or Q&A forums?
- StemFinity web site
- Do you have any questions?

Thats All Folks