INTERNET of THINGS for KIDS

Tiffany Davis & Gretchen Smith
Teachers, John R. Briggs Elementary School

Mark Cheli
Senior Software Engineer, PTC
Internet of Things 101
Model Project
Hardware & Software Tools
Your Questions
Internet of Things 101
Model Project
Hardware & Software Tools
Your Questions
Q: What is the “Internet of Things?”

A: The network of connected physical objects
The DNA of Products is Changing
Q: What is the “Internet of Things?”

A: The network of connected physical objects… Which have embedded electronics, software, sensors and actuators…

And which have a pathway to connect to the internet and a place to exchange information.

This results in a fundamental transformation in the end user's experience.
Elements of an “IoT Formula”

THING  |  CONNECTIVITY  |  DATA  |  LOGIC  |  VISUALIZATION
THE INTERNET OF THINGS
AN EXPLOSION OF CONNECTED POSSIBILITY

2019
14.4 BILLION
Today, there are 14.4 billion things connected to the Internet of Things on the planet.

2016
8.7 BILLION
Just two years old, IoT is already changing the internet.

2013
11.2 BILLION
According to researchers from Forrester Research, 50% of global consumers in 2015 will use the Internet of Things每天 in their daily lives.

2010
22.9 BILLION
The Internet of Things has already been used in industrial and commercial environments.

2009
IOT INCEPTION
Estimates the IoT was born sometime in the early 1990s.

2002
1,000,000
An estimated one million of the original 1,000,000 devices are still in use.

2003
0.5 BILLION
Many devices became connected to the internet.

1992
The first smart devices were created.

YEAR
BILLIONS OF DEVICES

2020
50.1 BILLION
The Internet of Things will include at least 50 billion connected objects by 2020.
Internet of Things 101
Model Project
Hardware & Software Tools
Your Questions
Can you create a smart pot that shares information about a plant’s health with first grade students?
Explore Phase

5-Minute Burst of cool
Explore Phase

5-Minute Burst of cool

Exploring IoT
1. Turn to Sensors page (5) of the handouts.
2. Go to a center.
3. Try the object that is there.
4. Complete the row for that object:
   ○ Sensor
   ○ Rule
EXPLORE PHASE

5-MINUTE BURST OF COOL

EXPLORING IoT

EXPLORING PRODUCT & USER
Create Phase

Mini Design Challenge

The Temp-Box!
- Keeping you balanced
- CUSTOMIZED to your needs
- Created by: Technos

Cool-Box
- PEPSUS
- Cool-Box
- A device that's
- Temperature can be
- Monitored and
- Controlled by an
- APP
- A low,
- Temperature,
- Leaves the
- Smart Device

Created by: The Technos
Create Phase

Mini Design Challenge

Multiple Prototypes
Share Phase

Planting Party
Share Phase

Planting Party

Fine Arts & Technology Night
All Phases

Cooperative Learning
All Phases

Cooperative Learning

Journaling
Internet of Things 101
Model Project
Hardware & Software Tools
Your Questions
What We Used
What We Used

- Arduino Uno
- Custom Arduino Code
  Interacts with Sensors
  Forwards Data via Serial
- Academic Edge Connector
  IoT Gateway Software
  Forwards Data via Websocket
- Dedicated Laptop
- Custom ThingWorx Application
  IoT Application Enablement Platform
- Server Infrastructure

powered by thingworx®
Other Options: littleBits
Other Options: LEGO EV3
Other Options: PI + Grove Sensors
elements powered by ThingWorx

An IoT education solution for exploring, creating, and sharing IoT projects.

- Easy-to-use web and mobile application
- Quickly connect to hardware and clouds
- Learn IoT with media-rich videos
- Create personalized projects
- Extend and share code on the community
Internet of Things 101
Model Project
Hardware & Software Tools
Your Questions
Talking Window Garden
Tiffany Davis, Briggs Elementary

Why Audrey?
Talking Window Garden

Tiffany Davis, Briggs Elementary
tdavis@awrsd.org

TDAVIS@AWRSD.ORG