

CMPE 131

Software Engineering

September 5, 2017

Ruby on Rails Introduction

Presented By
Melvin Ch'ng



Agenda

- Native App vs Web App
- What is Ruby on Rails?
- MVC Architecture
- What can you do with Rails?
- What I have done with Rails?
- RESTful API
- Getting started with Rails & Material Framework
- Build and deploy a Web App in 10 min?
- Possible Rails project ideas
- Q&A



Native App vs Web App

- Native App
 - Develop, build, and install on and for a device/platform
 - Faster and more efficient
 - More expensive to develop
 - Usually can be access via app stores/distributor
- Web App
 - Any internet enabled device
 - Do not need to download, but internet is required
 - Higher costs of maintenance
 - Lower quality control

Native App Scenario

- Alice is the owner of a grocery store. She would like to have a POS (Point Of Sale) solution for her business. She is looking for a system that is able to keep track of their inventory, sales, and cash. Each of the checkout counters should have one POS system.
- Why Web App is not the best choice?
 - Unable to access the application without internet access
 - *Note: Web App can run locally*

Web App Scenario

- Bob is the leader of a NGO (non-governmental organization). He wants a solution for public to report to their organization via questionnaire. This is to ensure that their organization can improve based on the information they receive from public.
- Why Native App is not the best choice?
 - Not everyone is willing to install an app just to submit a feedback or to perform a specific task that takes only a few seconds to complete

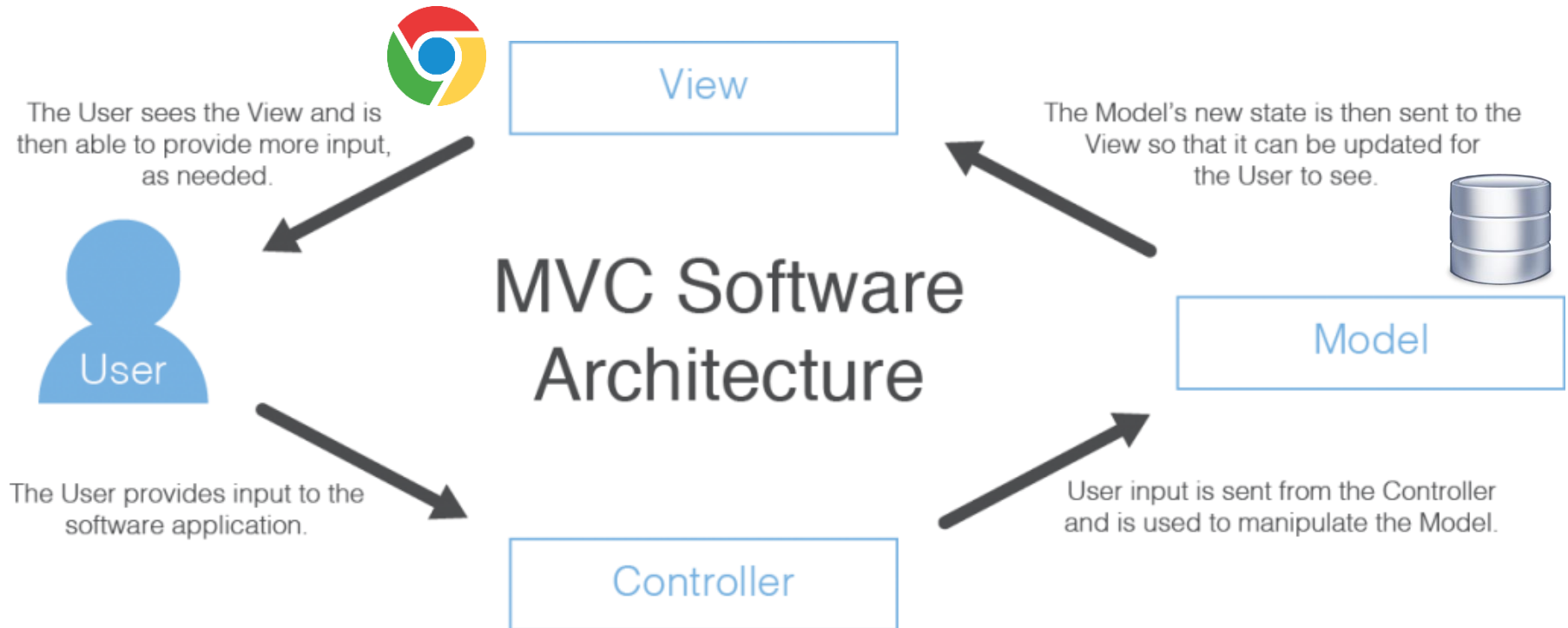
What is Ruby on Rails

- A server-side web application framework written in Ruby
- Model-View-Controller (MVC) framework
 - Structure for database, web service, web pages
- Use web standards
 - JSON or XML for data transfer
 - HTML, CSS and Javascript for display and UI

What is Ruby on Rails, *cont'd*

- Uses and emphasize the use of well-known software engineering patterns and paradigms
 - Convention over configuration (CoC)
 - Configuration files for default project structure have been setup
 - Don't repeat yourself (DRY)
 - Does not require change in other logically unrelated elements
 - Active record pattern
 - Object instance tied to a database table

Model-View-Controller (MVC)



Source: <http://www.whitesunrise.com/technology/ruby-on-rails-development/>

What can you do with Rails?

Anything!

- Challenge your creativity with limits
- From software to system integration
- Hardware interacting with Software, vice versa

List of Apps Made with Rails

- <http://awesomerails.com/>

What have I done with Rails?

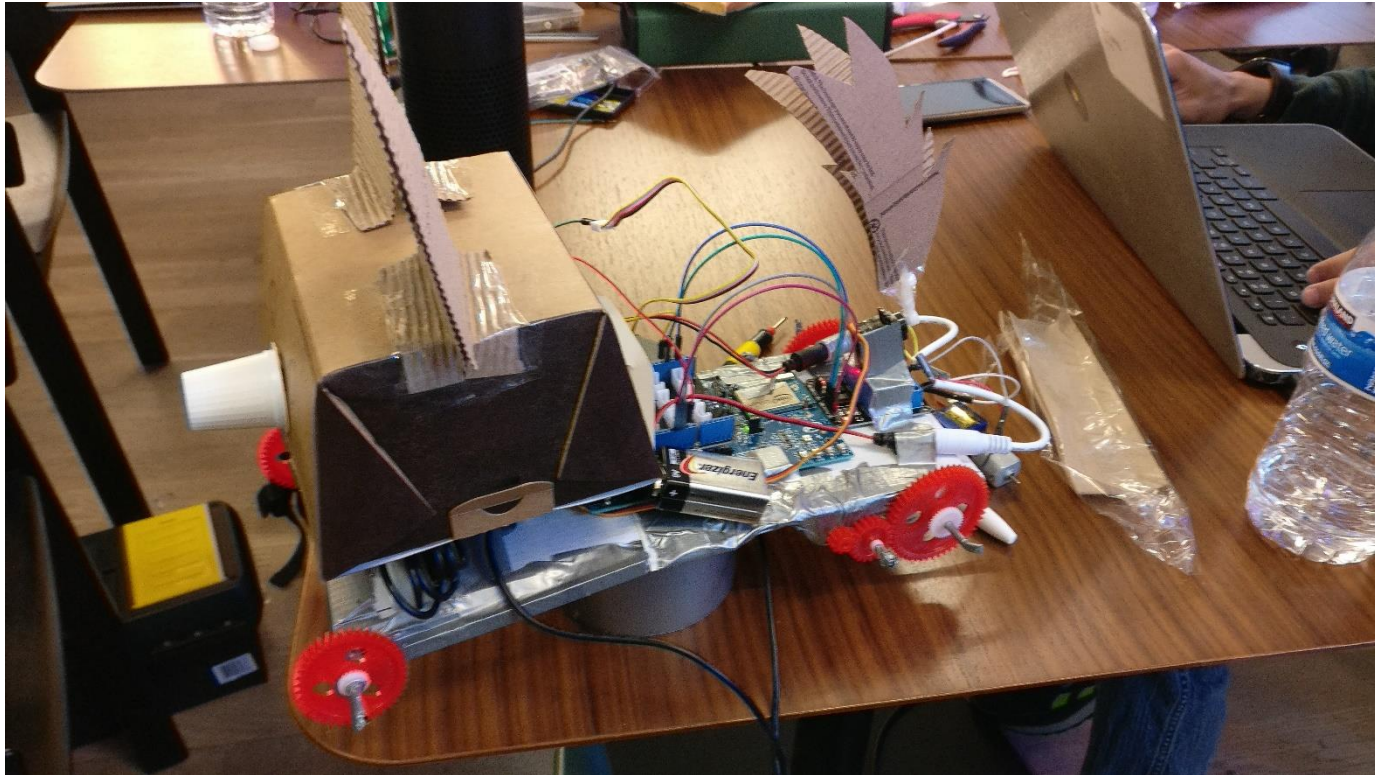
- Conference Website
 - Jekyll on Rails
- Data Analysis Web Application
 - Analyze California State University Employees' salary
- Quotation Generator Web Application
 - Generate quotation based on the measurements
- ChatBot Web Application
 - Integrates with API.ai
 - 24 hours hackathon project, team of 4

What have I done with Rails?, *cont'd*

- CorgiBot
 - Hardware and Software Integration (System)
 - An autonomous robot that moves and look for items
 - 24 hours hackathon project, team of 4
 - Top 10 teams in AngelHack Global Hackathon Series: SF
 - Best use of Amazon Web Services award
- SOMII
 - Hardware and Software Integration (System)
 - An interactive and educational booth that uses image reorganization
 - 6 months long prototyping project, team of 4
 - Awarded 4th Place in Paseo Public Prototyping Challenge

What have I done with Rails?, *cont'd*

- CorgiBot



What have I done with Rails?, *cont'd*

- SOMII



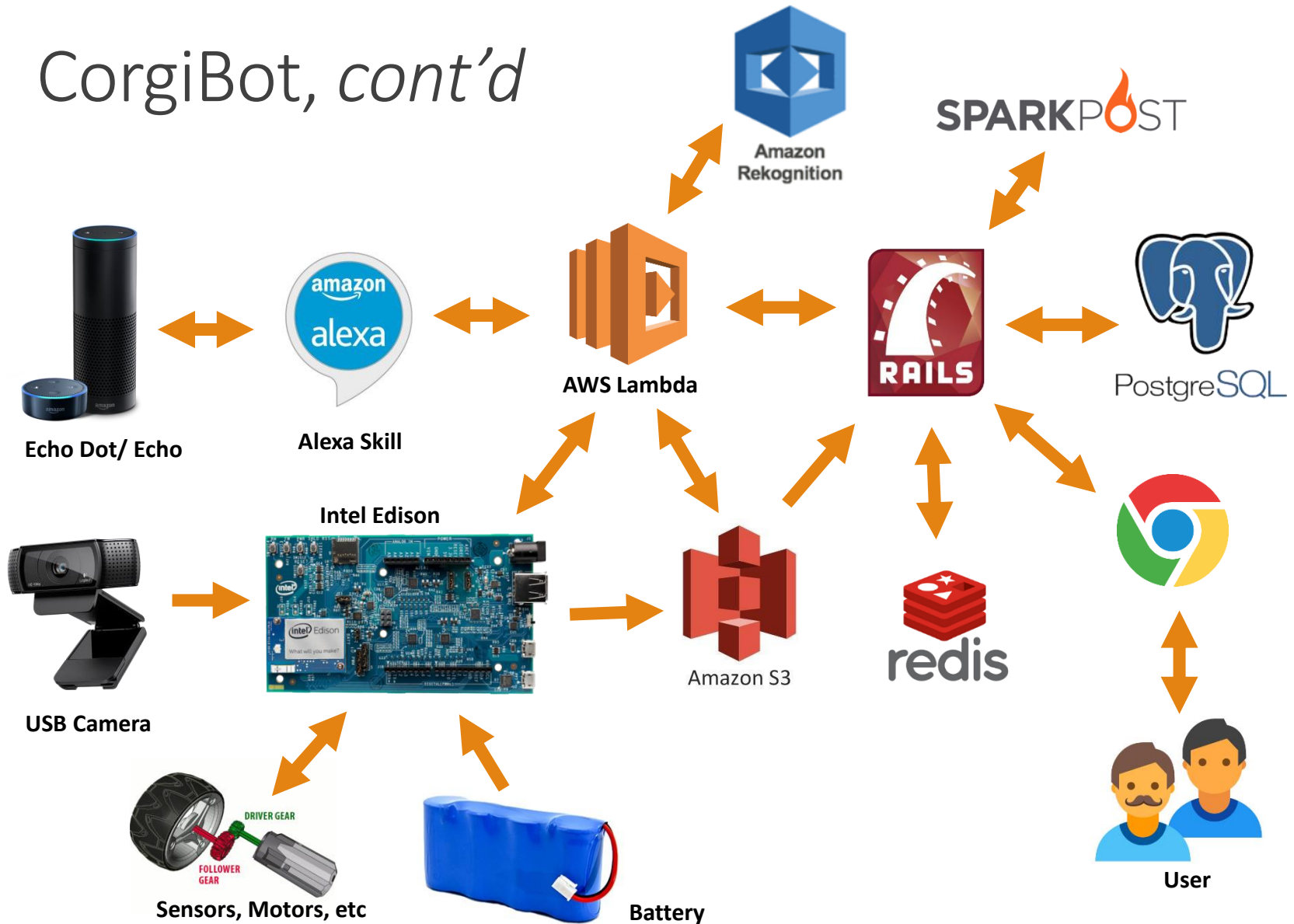
Data Analysis Website

- Data Analysis Website
 - Analyze California State University Employees' salary
 - Data available from Transparent California's Website
 - Downloaded and Imported as CSV
 - About 70,000 – 90,000 rows of data each year
 - <http://SampleDataAnalysis.herokuapp.com>
 - Built in 36 hours

CorgiBot

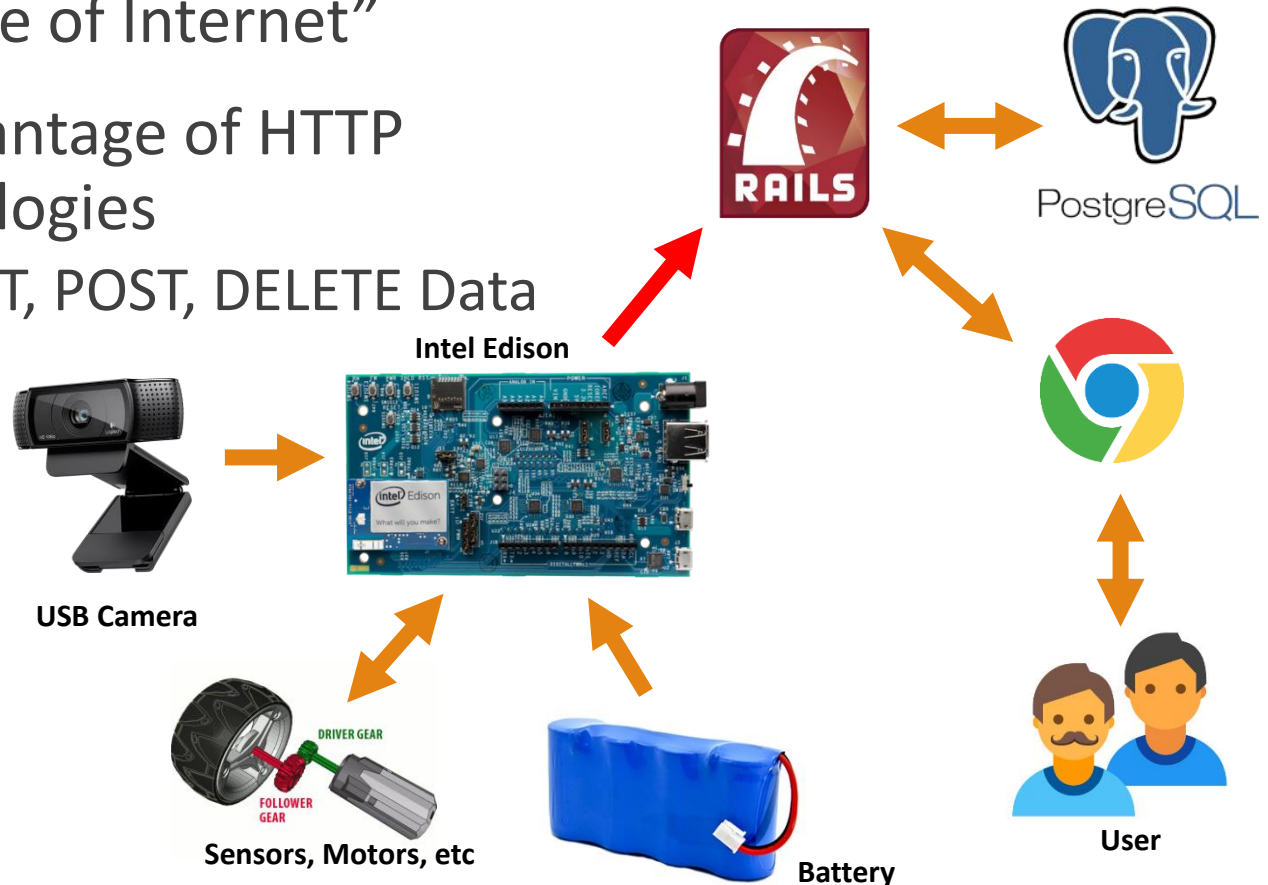
- Hardware and Software Integration (System)
- An autonomous robot that moves and look for items
- 24 hours hackathon project, team of 4
 - Top 10 teams in AngelHack Global Hackathon Series: SF
 - Best use of Amazon Web Services award
 - Ruby on Rails, Action Cable, Heroku, PostgreSQL, SparkPost, Redis, Intel Edison, Python, Python, Redis, Alexa, AWS IoT, S3, Lambda, and Rekognition.
- www.hackathon.io/cats-and

CorgiBot, *cont'd*



RESTful API

- “Language of Internet”
- Take advantage of HTTP methodologies
 - GET, PUT, POST, DELETE Data

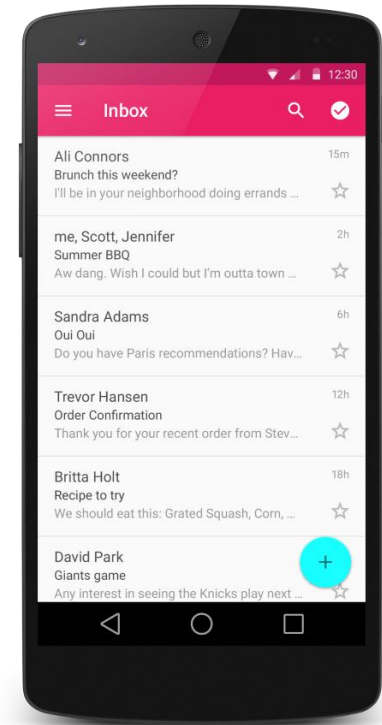


Getting Started with Rails

- [FREE] Ruby on Rails Tutorial written by me
 - <http://melvinchng.github.io/rails>
 - A lot of examples and screenshots
- [FREE] Michael Hartl's Ruby on Rails Tutorial
 - <https://www.railstutorial.org/book>

Material Design Framework

- Modern responsive CSS framework based on Material Design by Google
- Can be seen in Apps created by Google
- Stock Android design
- Sample site: <http://materialize-rails-template.herokuapp.com/>
- Source code: <https://github.com/melvinchng/Materialize-Rails>



Question:
Is it possible
to...

- Set up Rails Web Application with the criteria below in less than **10** minutes.
 - Material Design Framework
 - User Authentication
 - Deploy to the Cloud

Question:
Is it possible
to..., *cont'd*

- Video Link:
<https://youtu.be/MAQRKCLDSH0>
- Source:
<http://melvinchng.github.io/rails/SetupChallenge.html>

Possible project ideas for CMPE 131

1

Pet rental service

- Short term (hours, days, weeks) – Long term (months)

2

Dating site for busy engineering students

- Determine the best match between users

3

DoorDash for Alcohol

- Tired of going out to get a drink?



How the customer explained it



How the Project Leader understood it



How the Analyst designed it



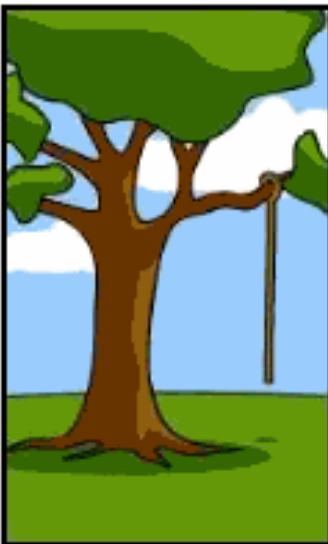
How the Programmer wrote it



How the Business Consultant described it



How the project was documented



What operations installed



How the customer was billed



How it was supported



What the customer really needed