

## **EPICS SMART CITY** Spring 2019





#### **Presentation Agenda**

- Problem
- Proposed Solution
- Teams:
  - Application Development Team

- Website Team
- Future Development

#### **The Problem**



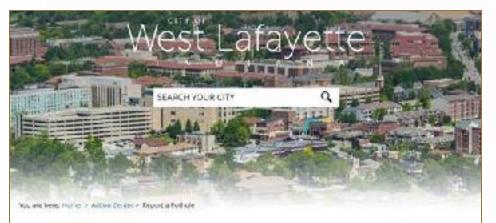
Figure 2 [2]

Figure 3 [3]

3

Figure 1 [1]

#### **Current Solution**



Asson Center rieme |: Logie

Report a Pothole

Step 5 of 1 Complete the kirm to report a pothole in the Otyrof Mesid Lebayerter.



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Figure 5 [5]

Figure 4 [4]

#### **Project Background - The Solution**



Citizens of West Lafayette Figure 7 [4] Engineers of the City of West Lafayette Figure 8 [4]



# **EPICS SMART CITY**

## **Application Development Team**





## Meet the App Team

Name	Role
Nikhil	Design Lead
Alex	Project Partner Liaison
Connor	Android Developer

## **Competitive Analysis**



Published: PublicStuff company Launch Time: 2017/2/23 Download: 10000+ Rate: 114 users Ratings: 4.1 stars





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Published: City of Boston Launch Time: 2010/11/5 Download: 10000+ Rate: 116 users Ratings: 4.1 stars Published: City of Seattle Launch Time: 2013/5/9 Download: 10000+ Rate: 93 users Ratings: 3.5 stars

## Cost Analysis of App Development

Website	Platform	Development Cost	Maintenance Cost (~20% of development cost)
Otreva Calculator	Multi-platform and website	\$167,400	\$33,480
Estimate My App	Multi-platform and website	\$130,500	\$26,100

## **AWS vs Firebase**

	Pros	Cons	Cost of storage
AWS (Amazon Web Services)	<ul> <li>Experience in the market (7 years)</li> <li>Flexibility of data storage location</li> </ul>	<ul> <li>Higher learning curve</li> <li>Billing is confusing</li> <li>Have experienced high level outages</li> </ul>	<ul> <li>For first 50TB/month - \$0.04/GB</li> </ul>
Firebase (Google)	<ul> <li>Lower learning curve</li> <li>Ease of migrating into another service</li> <li>Easier to scale</li> <li>Highly secure</li> </ul>	<ul> <li>Relatively new service (launched in 2018)</li> <li>Expensive when scaling</li> </ul>	<ul> <li>For storing the reports, it's \$0.026/GB</li> <li>For showing the reports on the app, it's \$0.15/GB</li> </ul>

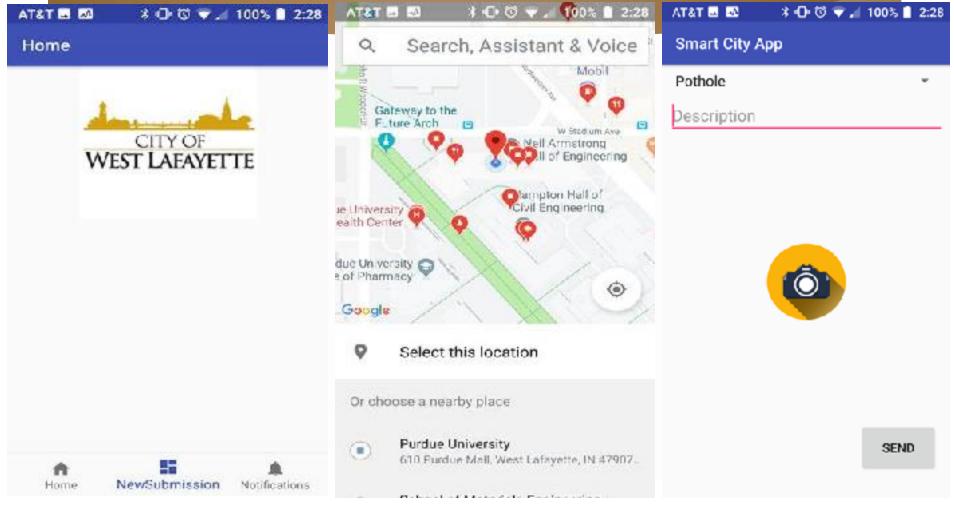
#### **Past Semester-Android**

- Basic but functional
- User interface needed updating

Intuitive

Could send data to database but could not receive any

#### Last Semester - Android



Figures 9 -11 [4]

#### **Current Semester - Android**

- Alternate to transition completed
  - Compatible with certain features
    - Marker clustering
  - Things already implemented
    - Excessive Business markers
    - Easier to update in the future
    - Follows planned design
    - Access Saved pictures
    - Display nearby issues
    - Receive data from from server



#### **Current Semester - Android Demo**



2019.04.1514.35.54

Submitted 2019.04.15 14.35.51

Submitted 2019.04.1514,33.40









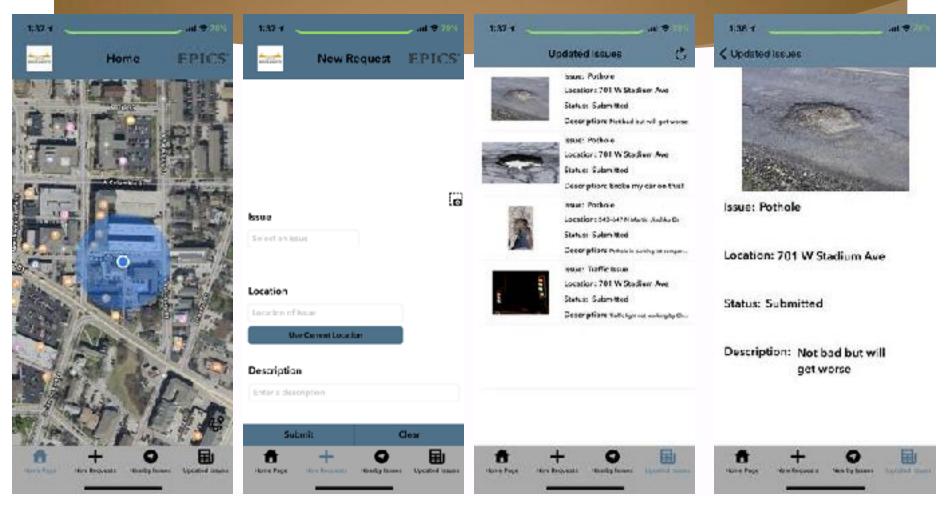


Figures 12 - 15 [4]

#### **Current Semester - iOS**

- Features:
  - Home Page
    - View map and your current location
  - New Request Page
    - Add picture
      - Either from camera or photo gallery
    - Select what type of issue it is
    - Add a location
      - Eithertyped or with GPS coordinates
    - Add a description
  - Updated Issues Page
    - See all issues that people have sent in

#### **Current Semester - iOS Demo**



Figures 16-19 [4]

## **Future Semesters - iOS**

- Plan:
  - o Clean up the look
  - Draw a boundary around Purdue's campus
    - Also, if the user is in the boundary, do not let the request be sent
  - Check for invalid reports
    - Having no image means you need a description etc.



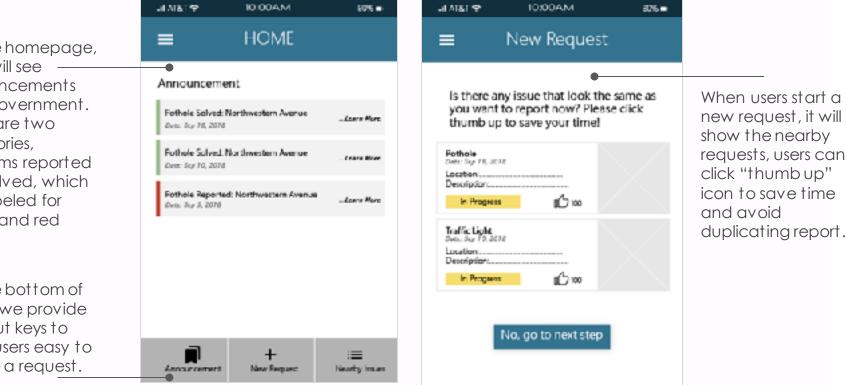
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Figure 20 [6]

#### Layout Introduction

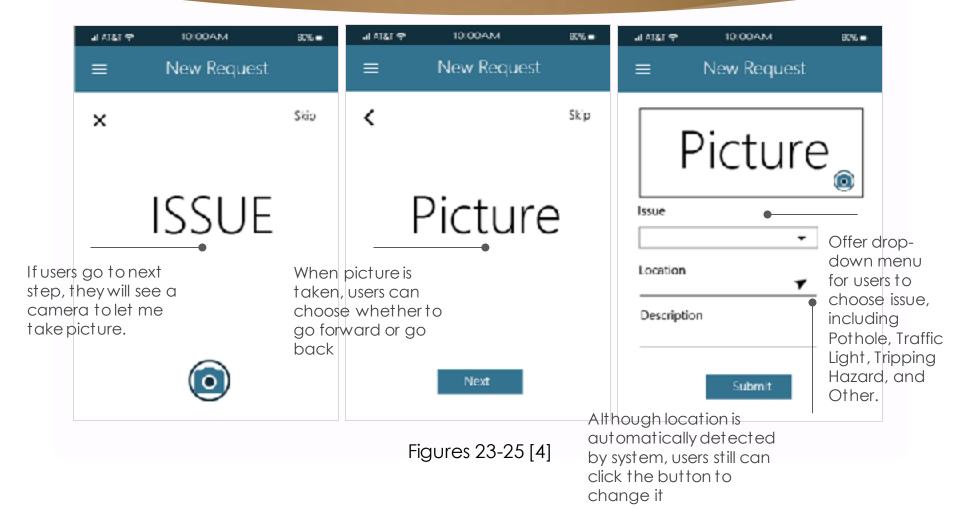
On the homepage, users will see announcements from government. There are two categories, problems reported and solved, which are labeled for green and red color.

On the bottom of page, we provide shortcut keys to allow users easy to initiate a request.

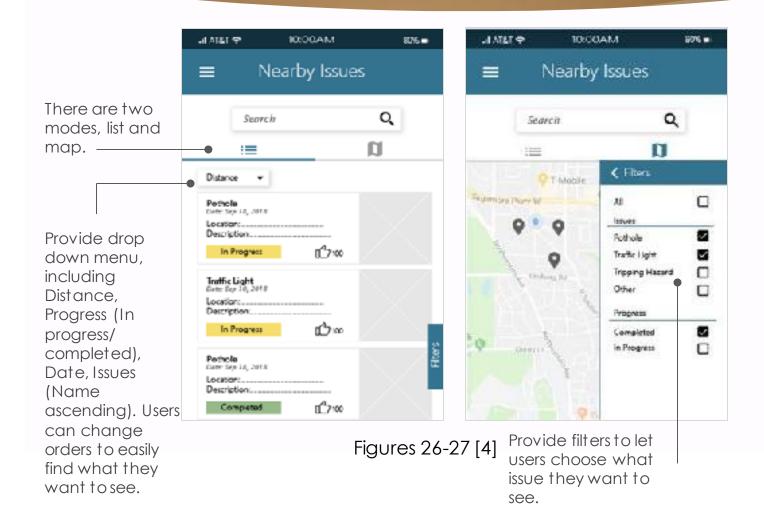


Figures 21-22 [4]

## **Layout Introduction**



#### **Layout Introduction**



#### **This Semester Progress**

- Android app received a UI update and can receive information from database
- iOS app was started from scratch and brought up to speed with the Android app

## **GANTT Chart & Our Goals**

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App Team Spring '19	start	end	95%	_	_			++			_	_	_	_	-
ios	02/06/19	04/09/19	100%		_	_		++		_	_	_	_	_	
Basic UI	02/05	0.071.1	100%	RAGE III											
Camera Function	02/25	04/00	100%				Comera	Function							
Send Function	02/25	04/09	100%				Send Fu	nction							
Description Function	02/2.5	04/09	100%				Descript	tion Fund	tion						
Android	02/16/19	04/14/19	86%					+ +						_	-
Import Data From Firebase	02/16	04/1.4	9555			Import Date Fro	on: Firebase								
Clean UI	03/11	04/14	70%							Clean UI					-
If Time Permits			0%												
Accept Manually Pushed Data			0%												
User Testing			0%												

## **Current Communications**



Website



# **EPICS SMART CITY**

#### **Website Team**





## **Meet the Website Team**

Name	Role
Ishaan Ahuja	Design Lead
Sreekara Yachamaneni	Webmaster
Owen Price	Financial Officer



#### **Previous Semester Highlights**



Reports

Status	<ul> <li>Peor</li> </ul>	n Grator. 🔹 🔹	Ksue	• Location1 Lac	ation2 Image De	scription
submitted	2018.11.05.11.11.21	Pathola	40.43102250000001	86.91506640624996	18.	ngwer
submitted	2012.11.07.11.12.01	Pathole	10 4309 12 4995 9999	\$6.91513971874999	-	nowTest
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nutmitted	2018.11.14 11.27.28	Pathala	40.43094249969999	-66.91517578125	na image	
jubmitted	2010.11.14.11.32.10	Pathole	40.43095250000002	-06.91515204375001	na image	helo
h-strimture	2218.11.14.11.87.17	Pathole	10.4209525000002	-\$6.91515224275001	rio image	
conmitted.	2318.11.14.11.55.21	Rathold	48143095250000002	-86.91517578125	no image	
battimiter	2018.11.14.14.28.36	Puthols	40-431037499999995	-86.91509765625	nia imager	8

## **Current Semester Progress**

• Got the google maps to function properly

• Added markers on the map for corresponding issues in the report

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• Filtering of the issues is complete with the map

• Added information about each marker when its clicked on



Reports

Index	Status	Time Stamp	Тура	Image	Description
1	Status +	2019.04.10	Pothole	- ANT	Not bad but will get worse

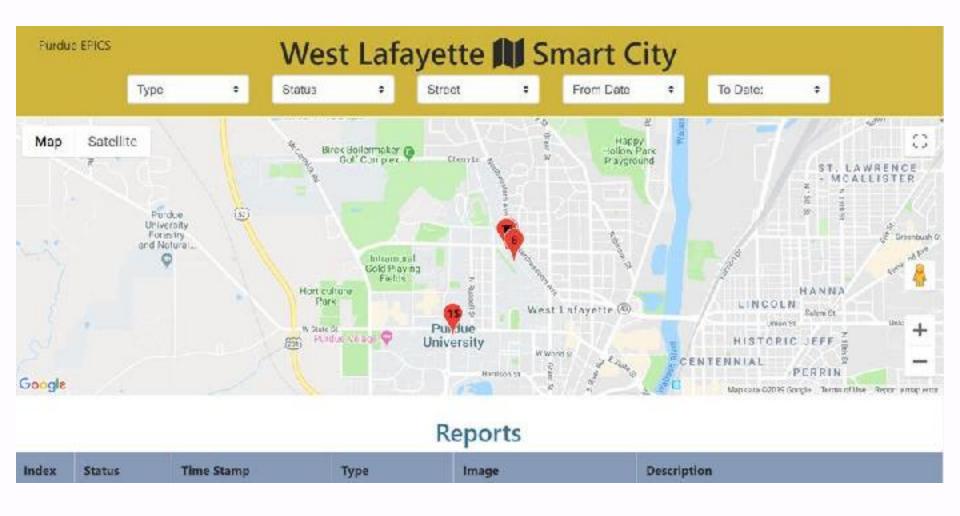


Figure 30 [4]

				Reports	
Index	Status	Time Stamp	Туре	Image	Description
1	Status -	2019 04.10	Pothale		Not bad but will get worse
2	Status •	2019.04.10	Pothole		Broke my car on this!
3	Status •	2019-04.10	Traffic Issue		Traffic light not working by Chauncey Scoare
4	Status +	2019 04 15 12 11 51	Pothole		Pothole in parking lot compared to foot

Figure 31 [4]

#### **Remaining Things**

• Communication from the website to the app for updates from city engineers to the public.

## **Gantt Chart**

						1/	19			4	19			3.	19				4/15		
					47	14	21	28	14	11	18	25	4	11	18	25	1	3	15	22	29
Smart Cities	start	end	0h	99%	8	-	-	-			÷	÷		-	-		÷	-		÷	
Website Team (Current Progress)	07/01/19	09/ <b>0</b> 4/19	0h	100%	F	+		+			+	÷		÷	÷	+		-			
Add bootstrap tables	07/01	28/01	0	100%																	
Get google maps running	07/01	12/02	0	100%					112												
Adding markers to google maps	07/01	14/02	0	100%																	
Expandable images	07/01	01/02	0	100%																	
Changing design	07/01	12/02	0	100%			-														
Filtering of table with map	29/01	09/04	0	100%																	
Communication from both apps to th	29/01	09/04	0	100%																	
Website Team (Future Goals)	10/04/19	26/04/19	0h	80%														1		-	٩.
Communication from website to the	10/04	26/04	0	80%														1			

#### **Digital Mockups**



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Figure 32 [4]

#### **Digital Mockups**

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Figure 33 [4]

## **Digital Mockups**

CITY OF VEST LABAY	rente			Calendar	Contact	<b>≜</b> <sup>2</sup> ⊖
			Search		۹	
letions:	Done Mark Calendar	Expert				
□-	Status 👻	Priority -	Date 👻	Issues -	Location -	Description
	In Progress	High	2018/9/30	Pothole	North Avenue	Picture Lorem ipsum dolor sit amet, consect etur adipiscing elit. Mauris non tem por ligula, id porta purus. Ut quis la.
2	In Progress	Medium	2018/9/30	Pothole	North Avenue	Picture Exercise Picture Description of the Picture Picture ad piscing all t. Mauris non-tem por ligula, id porta purus. Ut quista.
	In Progress	Medium	2018/9/30	Traffic Light	North Avenue	Picture Lorem ipsum dolor sit amet, consect ctur adipiscing dit. Mauris non tem por ligula, id porta purus. Ut quis la.
	In Progress	Low	2018/9/30	Tripping Hazard	North Avenue	Picture torem ipsum dolor sit amet, consect etur adipiscing elit. Mauris non tem por ligula, id porta purus. Ut quis la.
	Completed		2018/9/30	Other	North Avenue	Picture Lorem ipsum dolor sit amet, consect stur adipiscing allt. Mauris non tem por ligula, id porta purus. Ut quis la.

#### Website Demo







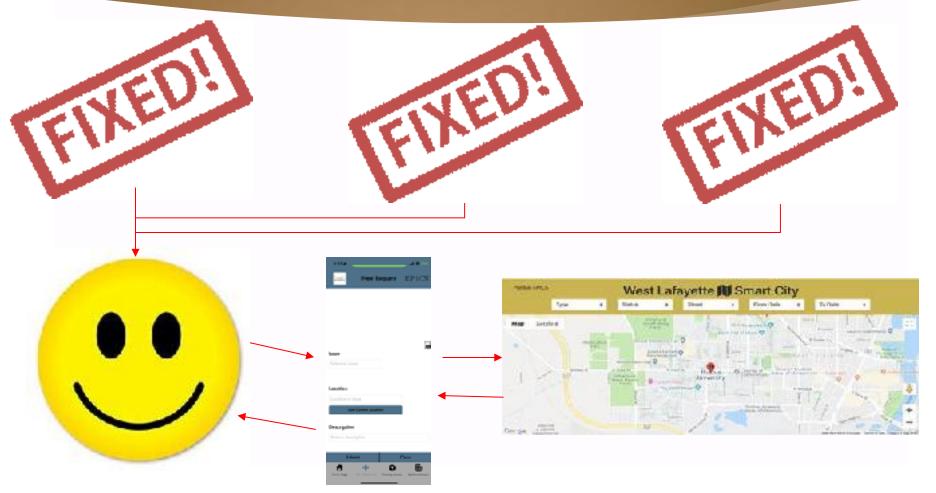
# **EPICS SMART CITY**

**Summary** 



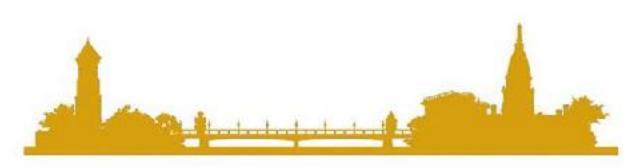


## **Project Purpose**



Figures 35-37 [4]

#### **Future Development**



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## CITY OF West Lafayette

## **Thank You!**

## Questions or comments?

#### References

[1] https://www.wibc.com/sites/g/files/exi441/f/styles/large\_730/public/articleimages-featured/554676-391326.jpg?itok=VPAnqxDA [2] https://cdn11.bigcommerce.com/s-10c6f/images/stencil/500x659/products/1053/1852/Caution2\_TrippingHazard\_ \_27983.1368544078.jpg?c=2&imbypass=on [3] https://cdn11.bigcommerce.com/s-10c6f/images/stencil/500x659/products/1053/1852/Caution2\_TrippingHazard\_ \_27983.1368544078.jpg?c=2&imbypass=on [4] Photos taken by the team [5] https://pbs.twimg.com/media/Da7cz0yX4AEYCAA.jpg [6] https://www.freepik.com/free-icon/apple-logo\_748451.htm

4]

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