

# ADVANCE FLOOD WARNING AND ENVIRONMENTAL AWARENESS SYSTEM FOR ROHNERT PARK (AFWEAR)

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Co-founder and CTO Dew Mobility, CA  
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# Advanced Flood Warning and Environmental Awareness System for the City of Rohnert Park (AFWEAR) – IoT Based

- Public Safety
- Conducting Traffic Control
- Avoiding Property Damage
- Manage Disaster Risk Plans
- Improve Flood Response Time
- Improves community awareness about flood risks



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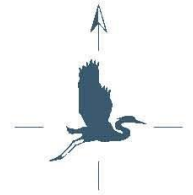


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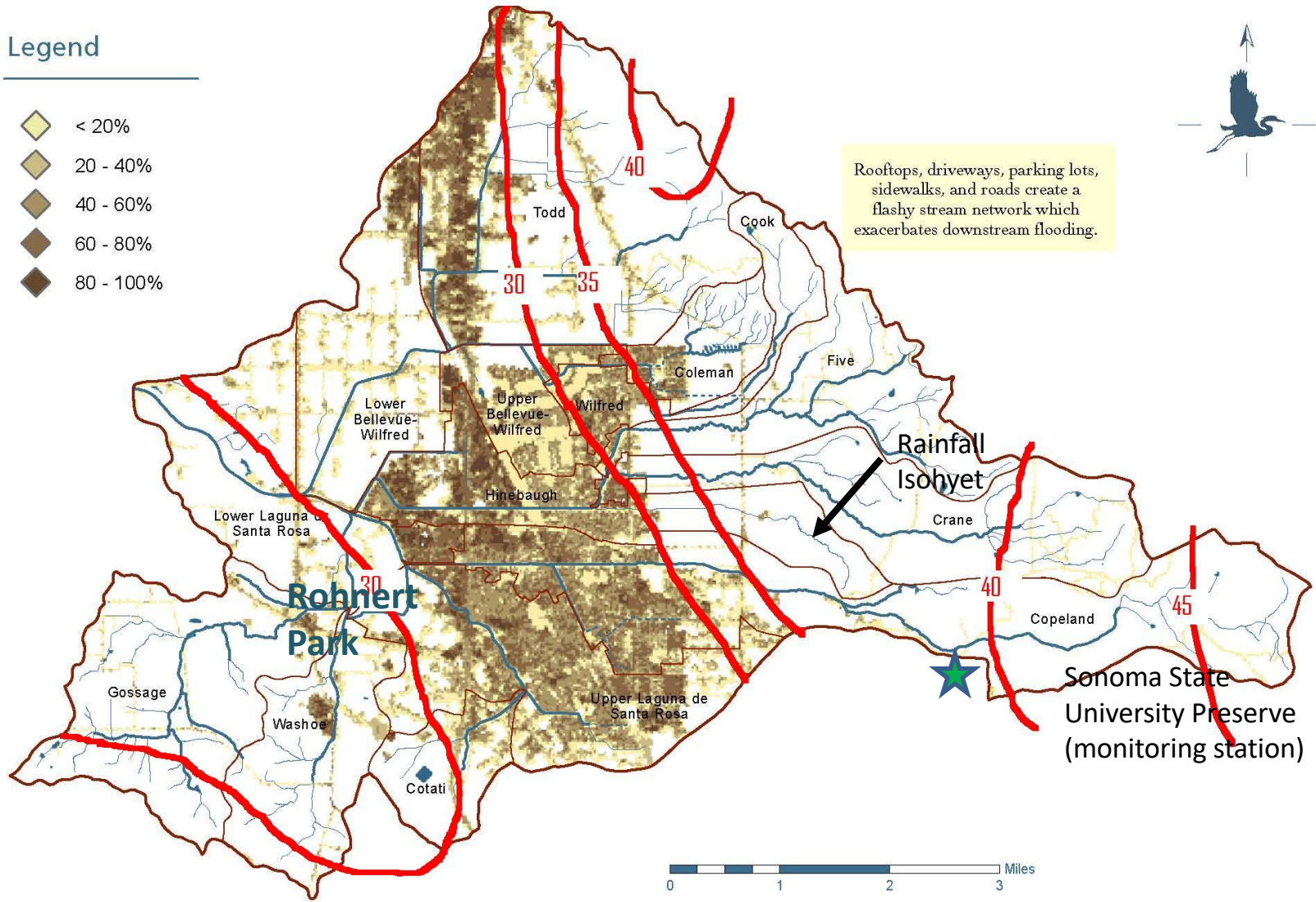


# Legend

-  < 20%
-  20 - 40%
-  40 - 60%
-  60 - 80%
-  80 - 100%



Rooftops, driveways, parking lots, sidewalks, and roads create a flashy stream network which exacerbates downstream flooding.






## Southern Laguna Watershed Impervious surfaces

2007 © Laguna de Santa Rosa Foundation  
Cartography: Joe Honton  
Map ID: LdSR 431-A



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# Summary of team members, including municipal partner(s) and team lead

## Shivakumar Mathapathi

Co-founder and CTO Dew Mobility, Fremont , CA  
Adjunct Professor and  
International Collaboration Coordinator  
Sonoma State University, CA

## Dr. Faid Farahmand

Chairman  
Department of Engineering Science  
Sonoma State University, CA

## Michael Thompson

Assistant General Manager,  
Sonoma County Water Agency

## Jaime Penherrera

Community Engineering Director  
City of Santa Rosa, CA

## Darrin Jenkins

City Manager  
City of Rohnert Park, CA



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# Project Focus

AFWEAR is a real-time network of environmental sensors, including rain and precipitation sensors that will be located throughout the city of Rohnert Park:

The purpose of the system will be the following:

- Improve **flood response** time and efficiency throughout the city.
- Link rainfall observations in the upper watershed (on the hill) and coasts to predictions of stream flow in the city.
- Provide ability to incorporate various environmental sensors, watershed models (assessment tools to plan and manage watersheds), and user-friendly communication tools .
- Rapid understanding and collaboration between scientists, citizens, and city planners as necessary in response to environmental “events”.



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# Timeframe for Deployment

Phase 1: June 2018 GCTC Tech Jam - Proto type 2 demo

Phase 2: AUGUST 2019 GCTC Expo - Deployment , field test runs and preliminary results.

Phase 3: JUNE 2020. Filed test continuation

Phase 4: 2020 GCTC EXPO - Demonstrate final product. Report measurable and quantifiable impacts to the residents of Rohnert park and Sonoma County .



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# Key Performance Indicators (KPIs) – how will you measure your project's success for June 2020 expo?

- Reduce flood related property loss by 15% (accidents, property destructions, loss of livestock, etc.)
- Develop a watershed model to forecast stream flow rates and water levels for periods ranging from 5-6 hours ahead.
- Improve alerting and reaching out to facilities located on or near potential flood zones by 80 percent within 5-6 hours prior to potential flood occurrence.
- Notify emergency workers to block roads, bridges, and overpasses located in flood zones 5-6 hours ahead in order to place appropriate flood-signs and sandbags.
- Improves community awareness about flood risks.

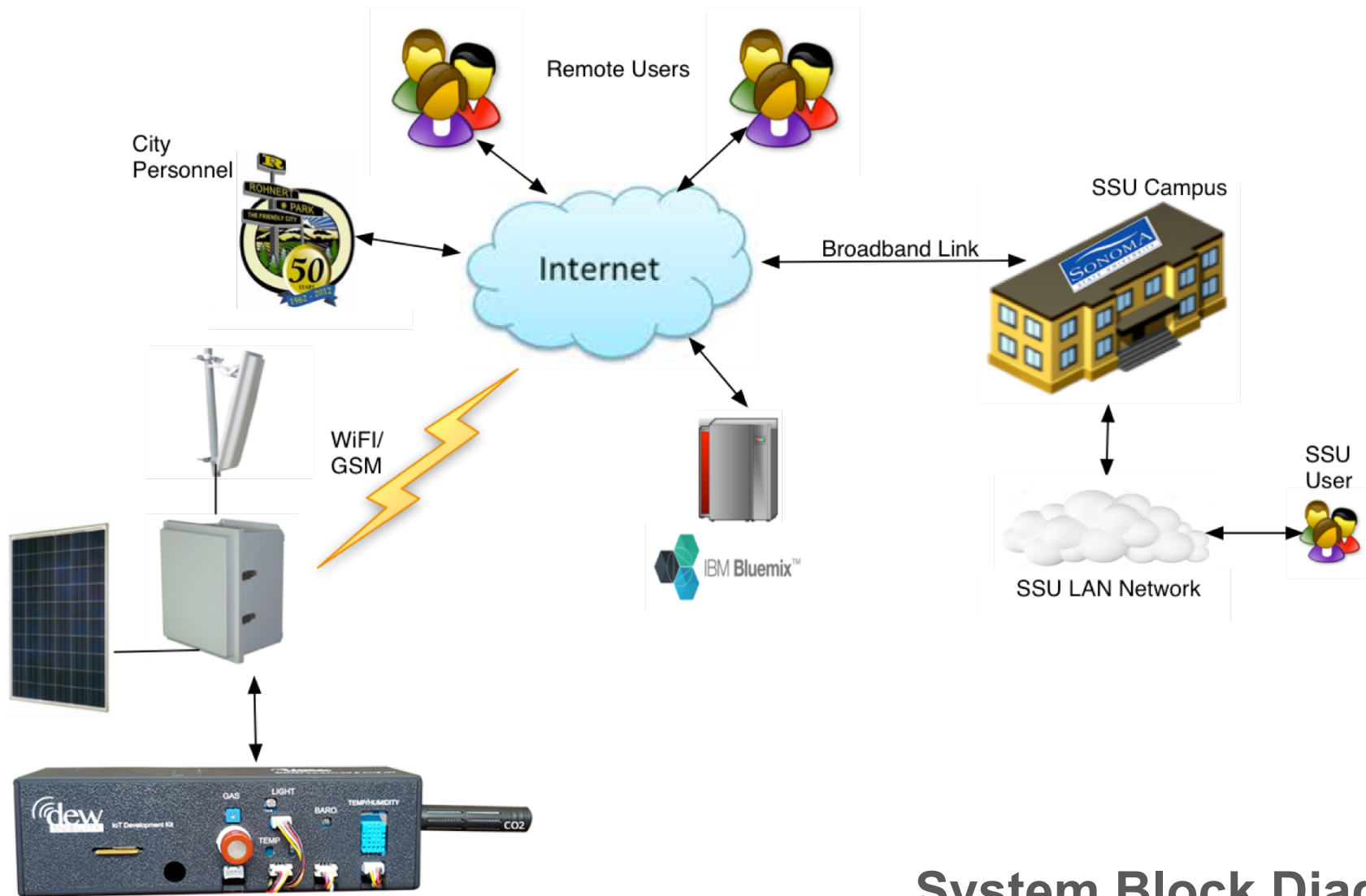


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Environmental Sensors:  
Flood, CO2, Temperature, Humidity, Light, etc.

## System Block Diagram

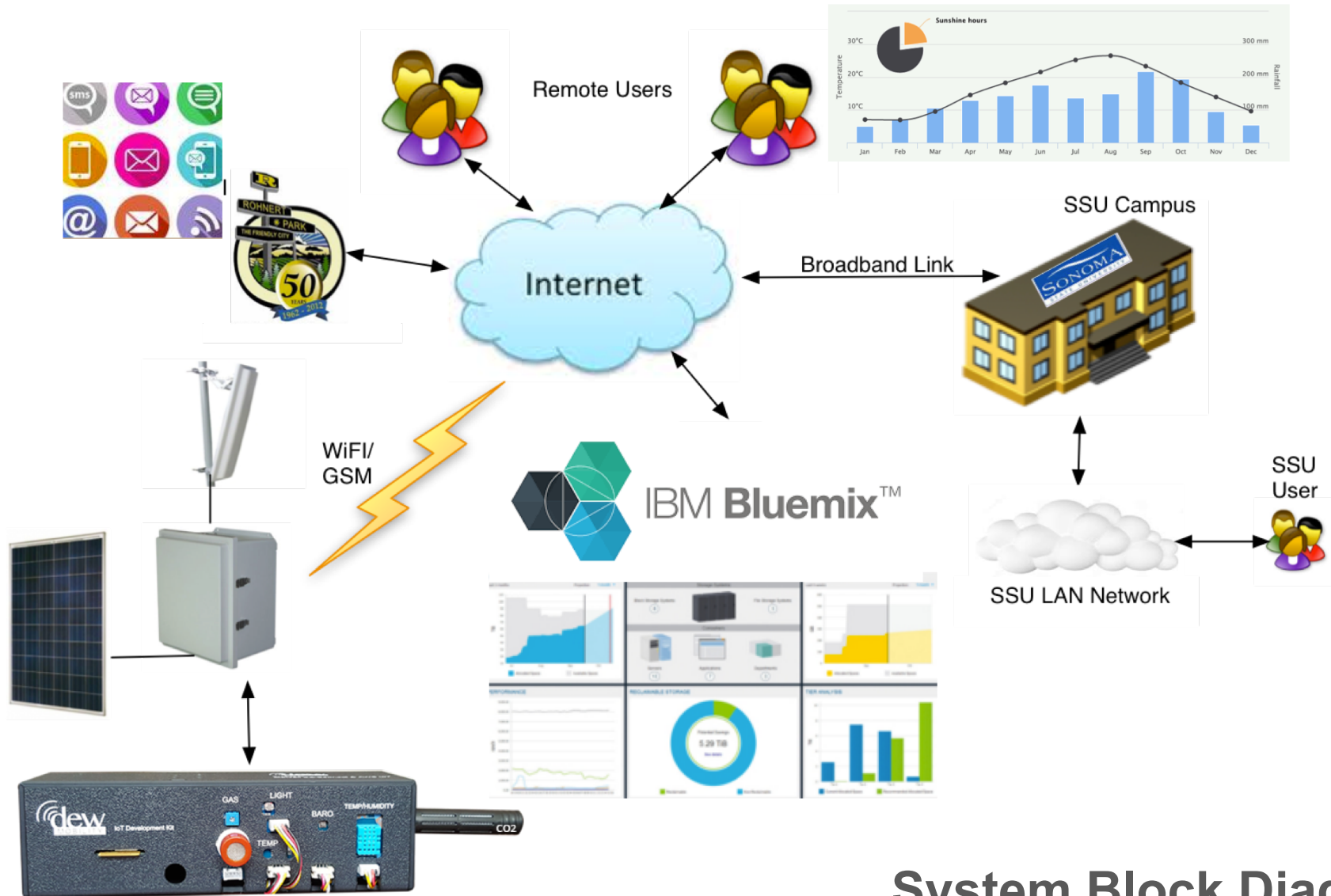


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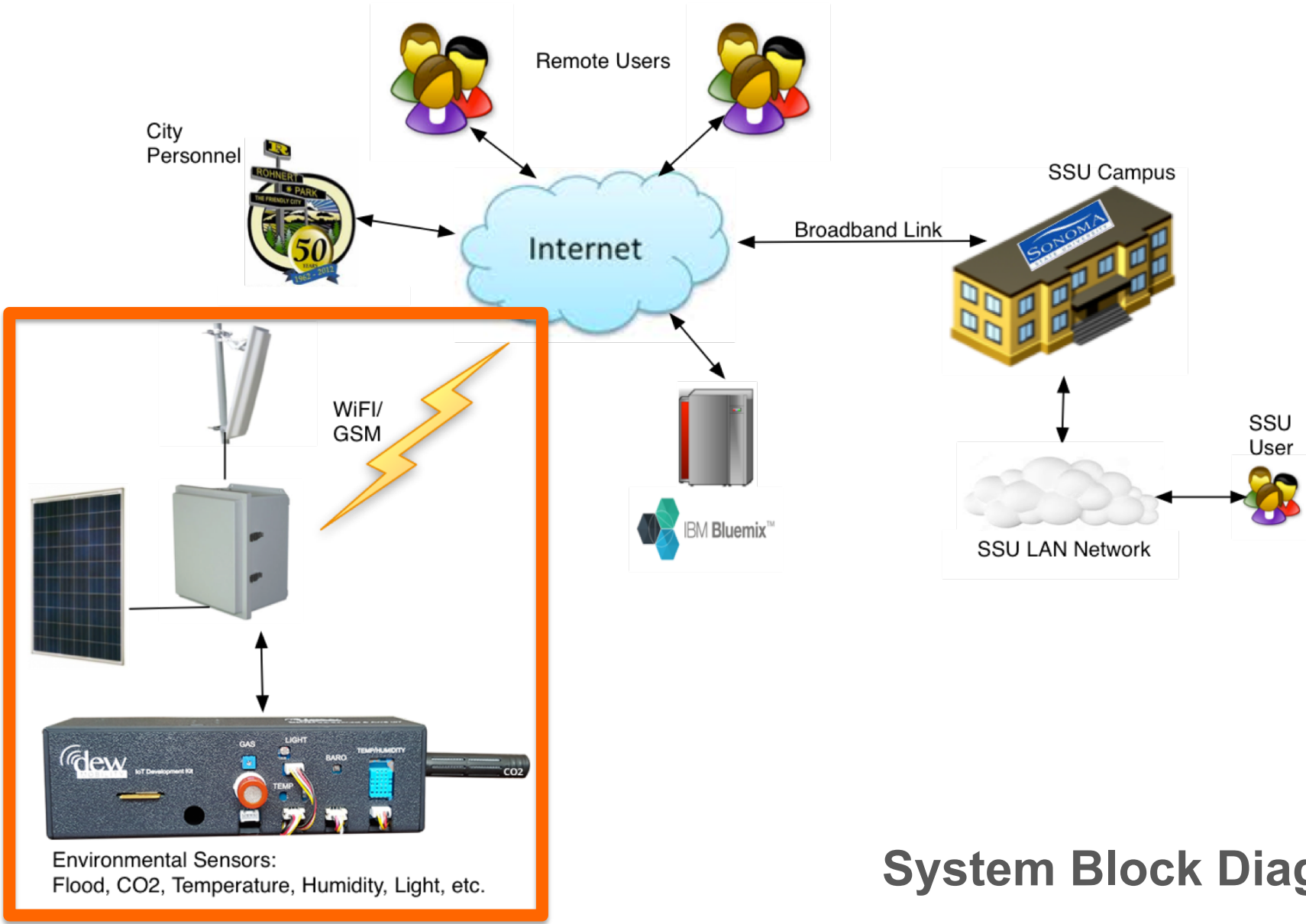


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# System Block Diagram



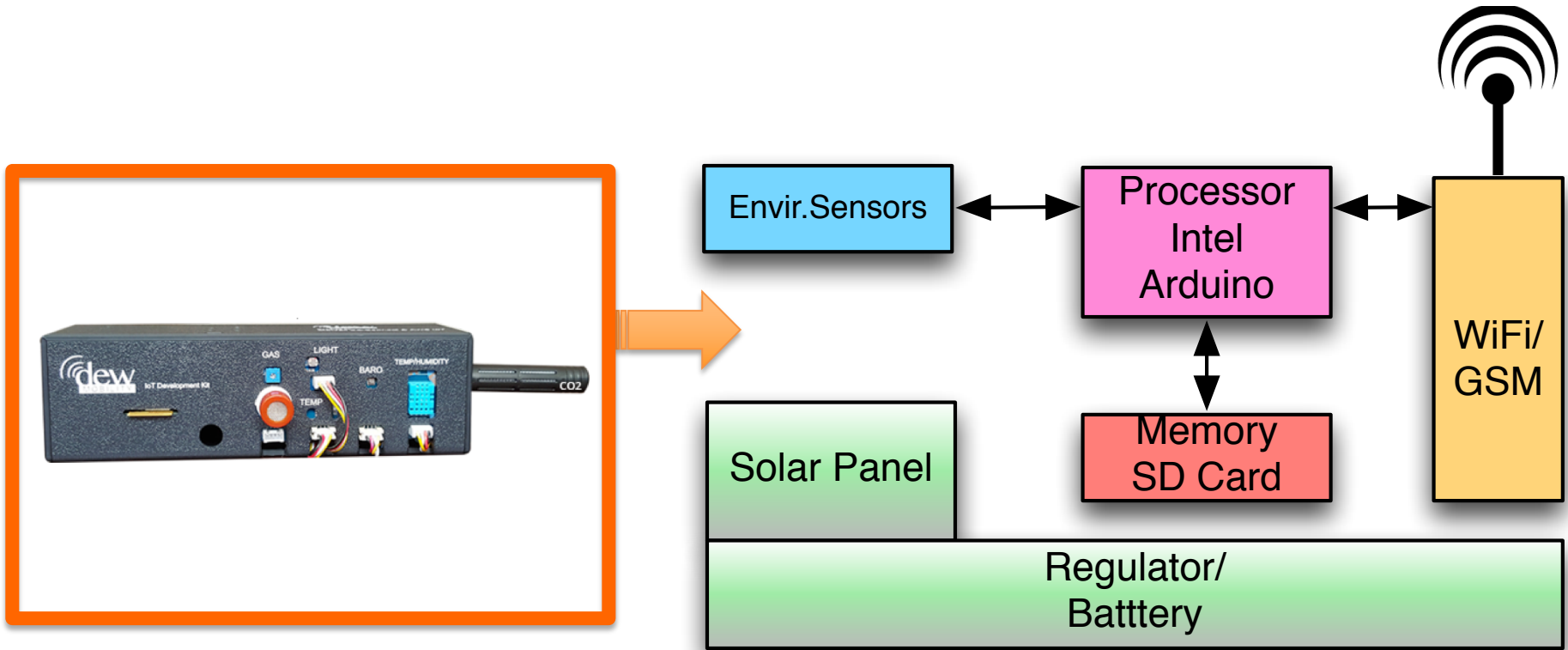
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# System Block Diagram





# Thank you

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