

# Floodbusters

## Project HydroCams



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# Our Goal

- Flooding causes over **\$3.7B of damage** and claims over **120 lives** annually in the U.S.
- Flagstaff water flows could soon reach **3x - 16x** normal levels
- Nationwide frequency of flooding has doubled since 2000; **expected to more than triple** by 2050
- Many flood-detection systems are burdensome, expensive, and impractical
- A **new, cheap, and easy-to-deploy** system utilizing the modern IoT is needed



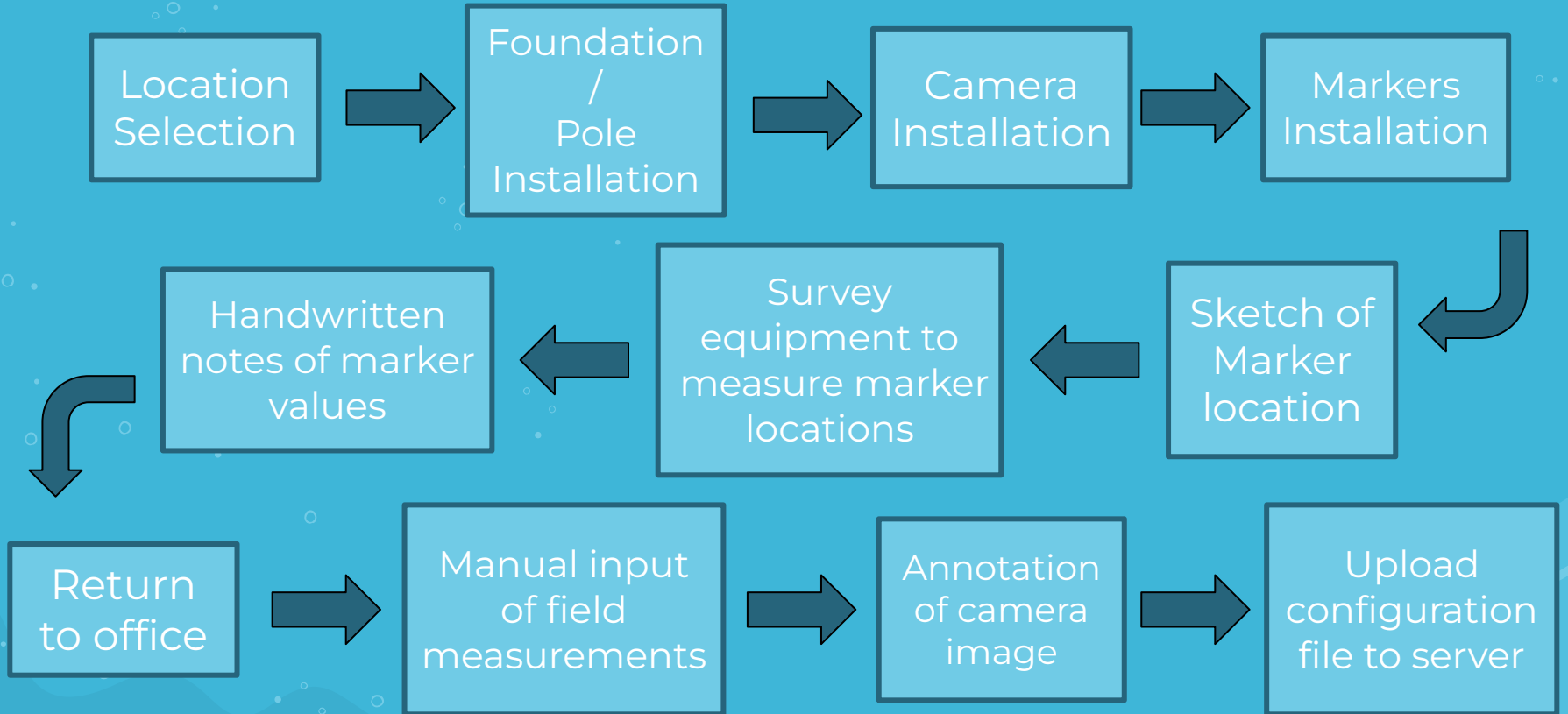
# Our Client

- Professor of Computer Science and researcher - SICCS NAU
- A part of the FloodAware Project which led to the formulation of HydroCams
- Doerry's Goals for HydroCams:
  - Affordable
  - Solar Powered
  - Cell-Connected
  - Easy Installation



Dr. Eck Doerry

# Current Process



# The Problem

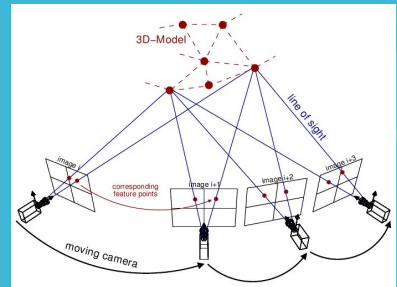
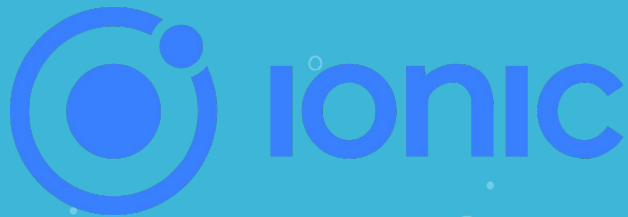
- There is no available and efficient monitoring system to mitigate damage and fatalities from flooding
  - Current systems are too expensive and labor-intensive
- A system needs to be developed that can efficiently monitor urban flooding

# Our Solution



The solution is split into a few parts:

- Automated CV software to perform image metrology.
- Use of SFM (Structure From Motion) to accurately calculate a 3D environment.
- Development of an Android and IOS app to increase convenience.



# Plan for Development

- 1.** Create a basic image metrology program
  - Manually identify markers in images
  - Measure distance between markers
  - Designing the tool components
- 2.** Automate using computer vision
  - Using the previous step but making it automated
- 3.** If metrology program is successful then app development
  - Android
  - IOS

# Conclusion

We are Floodbusters, working to create a computer vision program for Dr. Doerry

Working alongside with the HydroCams project, we can provide a better aid towards getting more cameras installed faster and cheaper

This project could save lives and money, replace an outdated system, and contribute to better flood detection