

# Video Measurement of Jugular Venous Pressure for Congestive Heart Failure Management



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## JVP USED FOR MANAGING HEART FAILURE

- **5.7 million** people in the US suffer from congestive heart failure (CHF), resulting in over **1 million hospital visits** annually<sup>1</sup>
- Jugular venous pressure, **JVP**, correlates to excess fluid volume, and **yields prognostic information** in CHF patients

## CURRENT JVP MONITORING TECHNIQUES

- In-person examination by a physician
  - Physician approximates JVP height by eye
  - Requires regular hospital visits
  - **Accurate but expensive and inconvenient**
- **A need for a non-invasive, at-home system**
  - more cost and time-effective for patients

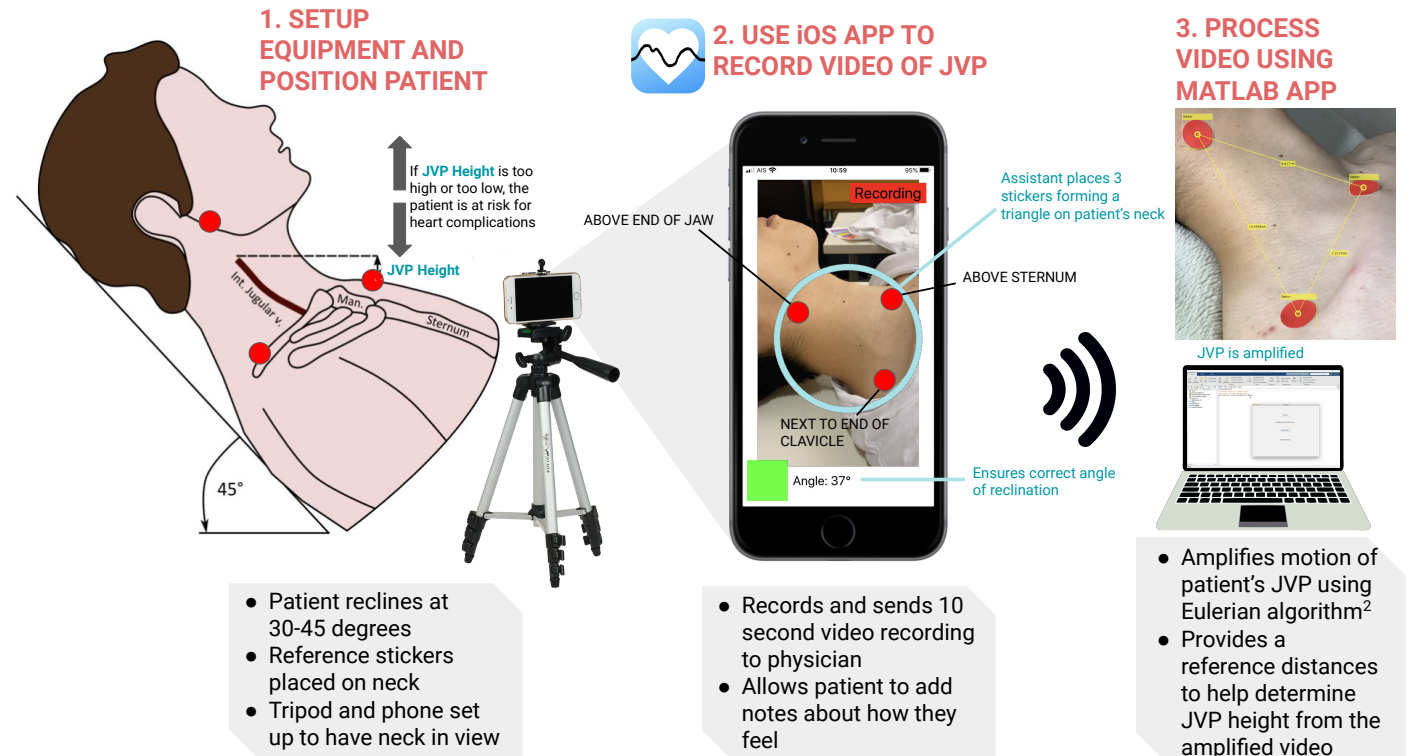
## OBJECTIVE

**Design a camera-based system that enables patients to measure their JVP at home without the presence of a physician**

## DESIGN CRITERIA

Criteria	Target	Product
Cost	Less than \$300	\$0
Desktop App Functions	Amplify and provide reference distance in videos	✓
Clinical Utility of Amplified Video	Physician can determine location of JVP	✓
Hardware Components for Physician	Less than 2	1
Hardware Components for Patient	Less than 5	3
Patient Ease of Use	User rating of 4 out of 5	✓
Processing Time	Less than 10 minutes	5-8 minutes

## OUR SOLUTION



## RESULTS

1. **Simple & Effective** desktop & mobile apps
2. **JVP height is more visible** from amplified video with reference distance compared to raw video
3. **Positive feedback from physician** on the usefulness of amplified JVP videos

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## NEXT STEPS

1. **Further refine** mobile and desktop apps
2. **Improve speed of algorithm**
3. Obtain **IRB approval** and solicit **patient feedback**

## REFERENCES

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