



BACKGROUND

Photogrammetry is the technology of extracting 3D information from photographs of objects and the environment. In medicine, photogrammetry is mainly used for measuring the human body for the planning and monitoring of treatment, but most relative devices occupy a large space and are

complex to operate. [1] Photogrammetry device



GOAL

Our project is a portable device that takes photos of human faces from different perspectives under different wavelengths of light, and then synthesizes all photos to reconstruct the 3D models. The final goal is to detect patients' physiological states such as blood pressure from the 3D models to judge the user's healthy degree.

DESIGN

Conceptual graph of our device



[3] Back of one board

Hyperspectral 3D Photogrammetry

Jialiang Zhang, Yuyao Xu, Yuming Wang, Xiao Kuai, Tianhao Gu Professor William C. Tang, Dr. Andrew Browne Department of Electrical Engineering and Computer Science



CHALLENGES & FUTURE WORK

Challenges:

- Coordinate 9 pi0s with one pi3
- Auto-connect pi0s with pi3
- Achieve high quality images for 3D modeling
- Make a decent and portable design

Future Work:

- Design and 3D print hinges to connect boards Transfer data from pi3 to PC
- Combine codes and commands in one module to automatically start the process of photographing and processing



PROGRESS					
Tasks	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7
ardware					
onnect cameras to pi0	\checkmark				
onnect LED to pi0		\checkmark			
eate pi3 hotspot				\checkmark	
oftware					
0 control camera	\checkmark				
0 control LED		\checkmark			
3 control pi0			\checkmark		
ansfer pi3 data to PC					
uild 3D model					
esign and others					
esign divice model		\checkmark			
smble all conponents					\checkmark
est current divice					

MATERIALS

- Nine Pi 0s One Pi 3 Nine LED lights Nine infrared lights
- Nine cameras
- Nine wooden boards
- **Source of power**
- Hinges

REFERENCE

[1] Pixellighteffects, "How it works", https://pixellighteffects.com/why-use-photogrammetry/ [2] Whole30 Success Story, "Janet W. and Chronic Urticaria (Hives)" https://whole30.com/whole30-success-story-hives/

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