



# DermVue: The future of skin cancer detection



## Problem:

- Skin cancer is the most common type of cancers in the United States.
- It takes about 3-6 months to see a dermatologist.
- Some people have to travel for hours since there are no doctors nearby.
- Cancers can grow and spread to other parts of the body during that time.
- It becomes harder and more expensive to treat; sometimes impossible.
- Each year, government spends more and more money for cancer treatment.



Photo 1. Virtual prototype of DermVue



Photo 2. Real-life prototype of DermVue

## Solution: DermVue

- A machine more accurate at finding skin cancers than a dermatologist
- Conveniently located in local grocery stores and pharmacies
- Works within seconds to minutes
- No more long waits and worrying while waiting
- Free to use for people who cannot pay
- If cancer is found, it schedules urgent visits with partnering doctors
- Help save lives and cost of healthcare



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## How DermVue works:

- You walk into it like going into a closet and it has hundreds of cameras that take photos of your whole body
- Some cameras have dermatoscopes that lets you see details you can't see with your eyes (sort of like a microscope)

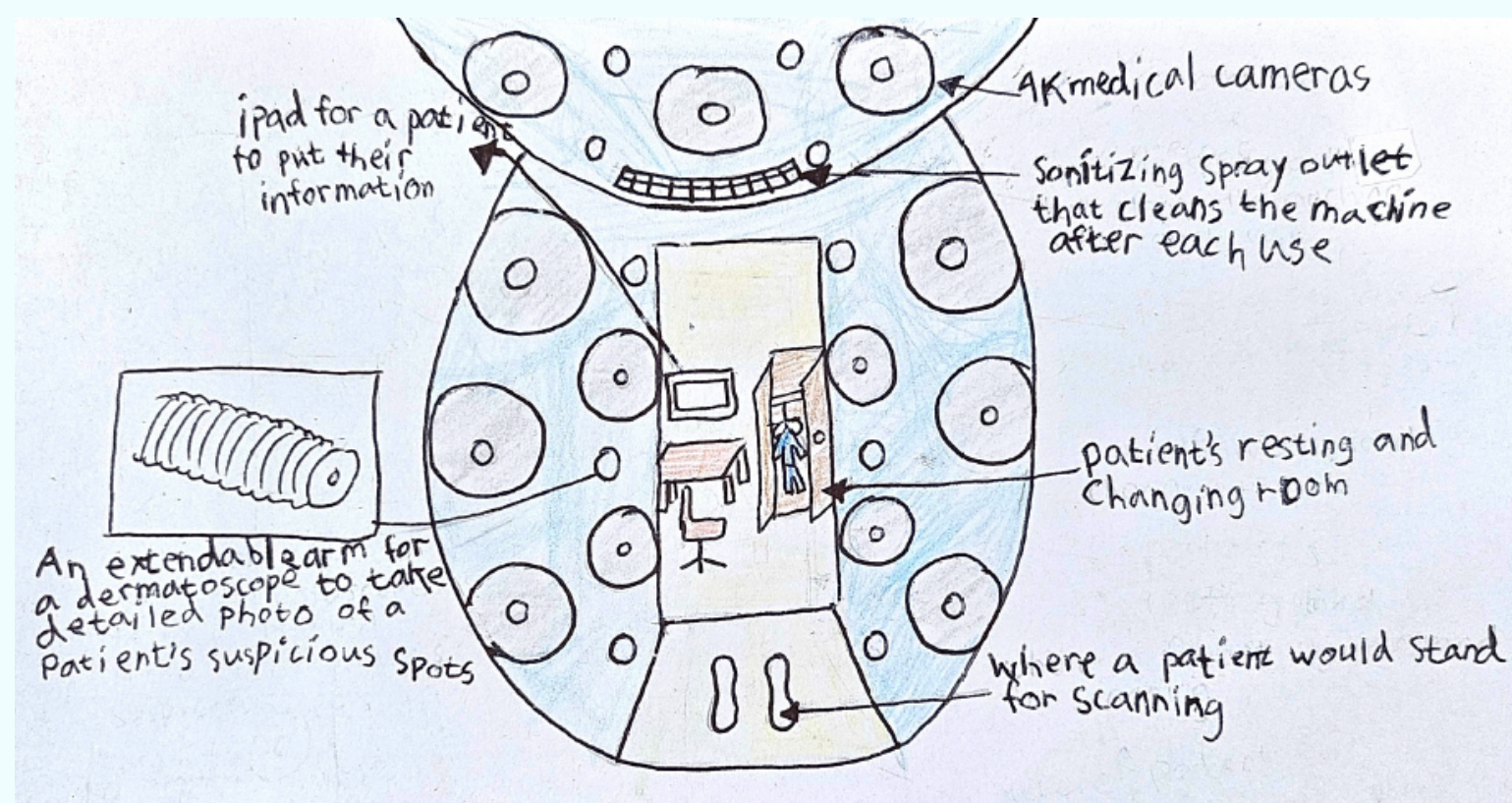


Photo 3. Interior design of DermVue

- AI program figures out which spots have cancer with 97% sensitivity (better than most doctors)<sup>1</sup>
- AI program will become even more accurate as more people use DermVue
- If cancer is detected, it automatically schedules you to see a doctor in person for treatment
- If cancer is not detected, your photos are saved and DermVue will compare these to ones that are taken next time you use it



Photo 4. Workflow of DermVue



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## How skin cancer would be diagnosed if without DermVue:

### In-person visit with a dermatologist

☹️ Long wait to see a dermatologist (3-6 months)



### Dermatoscope

☹️ Dermatoscopes are expensive (>\$1,000) and needs specialized trainings to use well



### AI apps

☹️ Good quality dermatoscopic photos are needed. Hard to take hundreds of photos of all the spots on the body.



## How DermVue can become a reality:

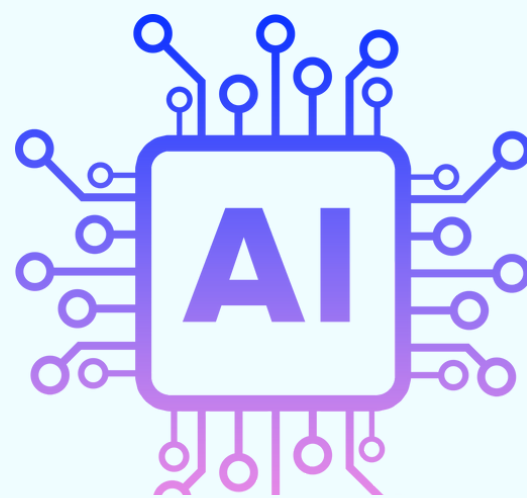
### Great medical imaging

✅ How well DermVue works depends on how good the photos taken by medical cameras are



### Accuracy of AI

✅ DermVue will initially be trained with more than 1 million dermatoscopic photos. The more people use it, the smarter DermVue AI will be in diagnosing a skin cancer



### Speed of data processing

✅ DermVue AI's speed and power will improve if we use a quantum computer that is 158 million times faster than a current supercomputer.

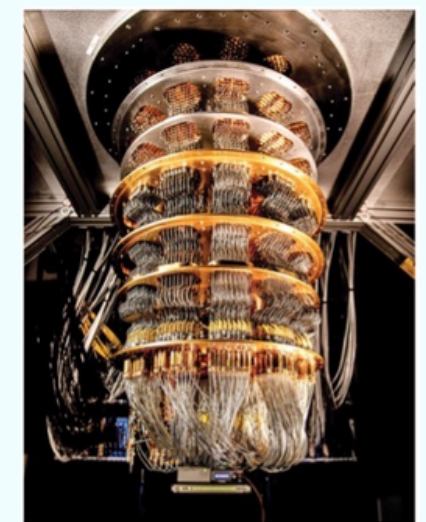


Photo 5. Google's quantum computer<sup>2</sup>

## Challenges:

- People may be shy of getting photos taken of whole body
- People's data is not 100% secure (same as hospitals that use computers)
- Some spots that are normal can be mistaken for skin cancer; some cancers can get missed (but DermVue will do this less than most doctors)
- If we make this free to use, we need a lot of money from government or donations to set it up all over the country

## References:

1. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10093624/>
2. <https://quantumai.google/quantumcomputer>