



Dear Esteemed Jury!  
We are team

**RELIANCE**

from

**UET PESHAWAR**



# Our Project

**HEALTHCARE 360 °**



**HEALTHCARE 360°**

• Empowering Lives Via Technology •

## Empowering Lives Via Technology!



# What is Healthcare 360° ?



Your all Religious  
needs at one place!



**HEALTHCARE 360°**

• Empowering Lives Via Technology •

Your all Healthcare  
needs at one place!

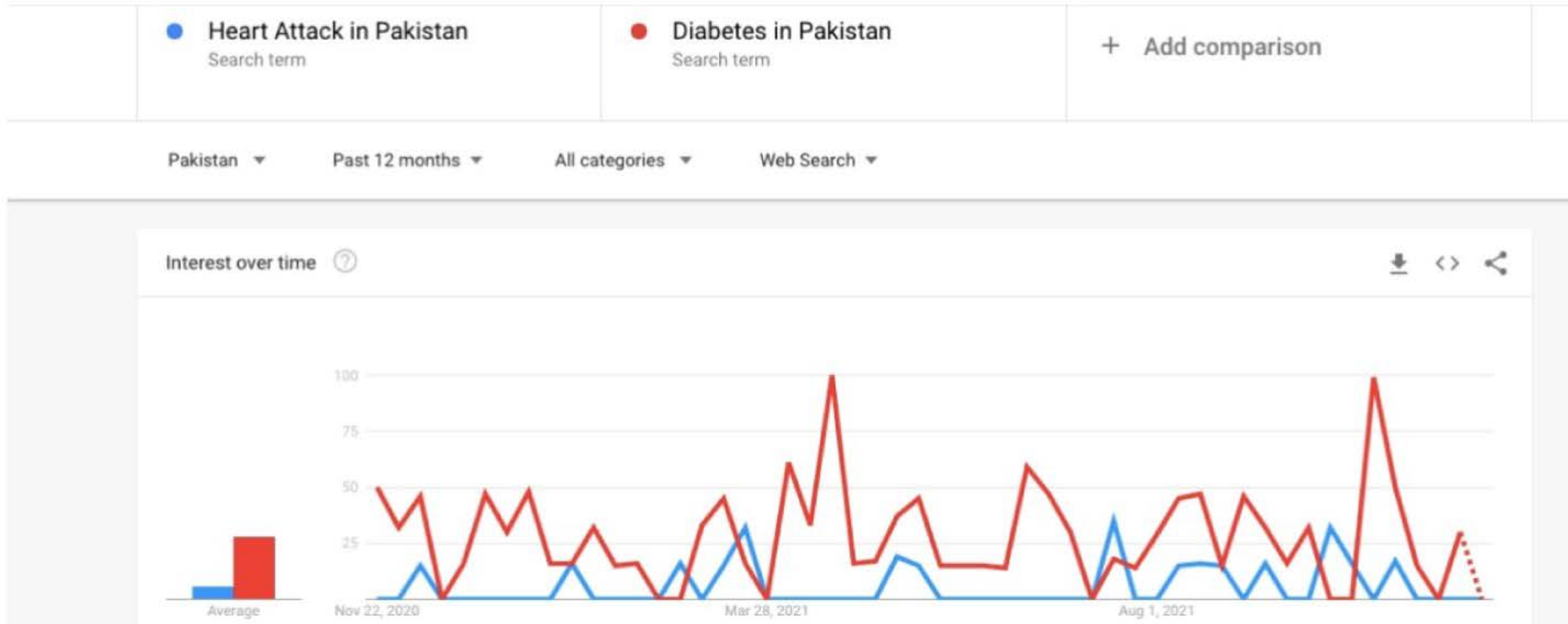


- Diabetes Mellitus Hub
- Air Quality Hub
- Electronic Medical Records (EMR- Blockchain) Hub
- Oncology Hub (Various Cancers)
- Cardiovascular Hub (Heart Diseases)
- COVID-19 Hub
- Azure Health Bot Hub
- Pulmonology Hub
- Ophthalmology Hub



# Problem Statement

**Diabetes is the root of all evils!**



**Diabetes & Cardiovascular family of diseases accounts for 80% of deaths!**

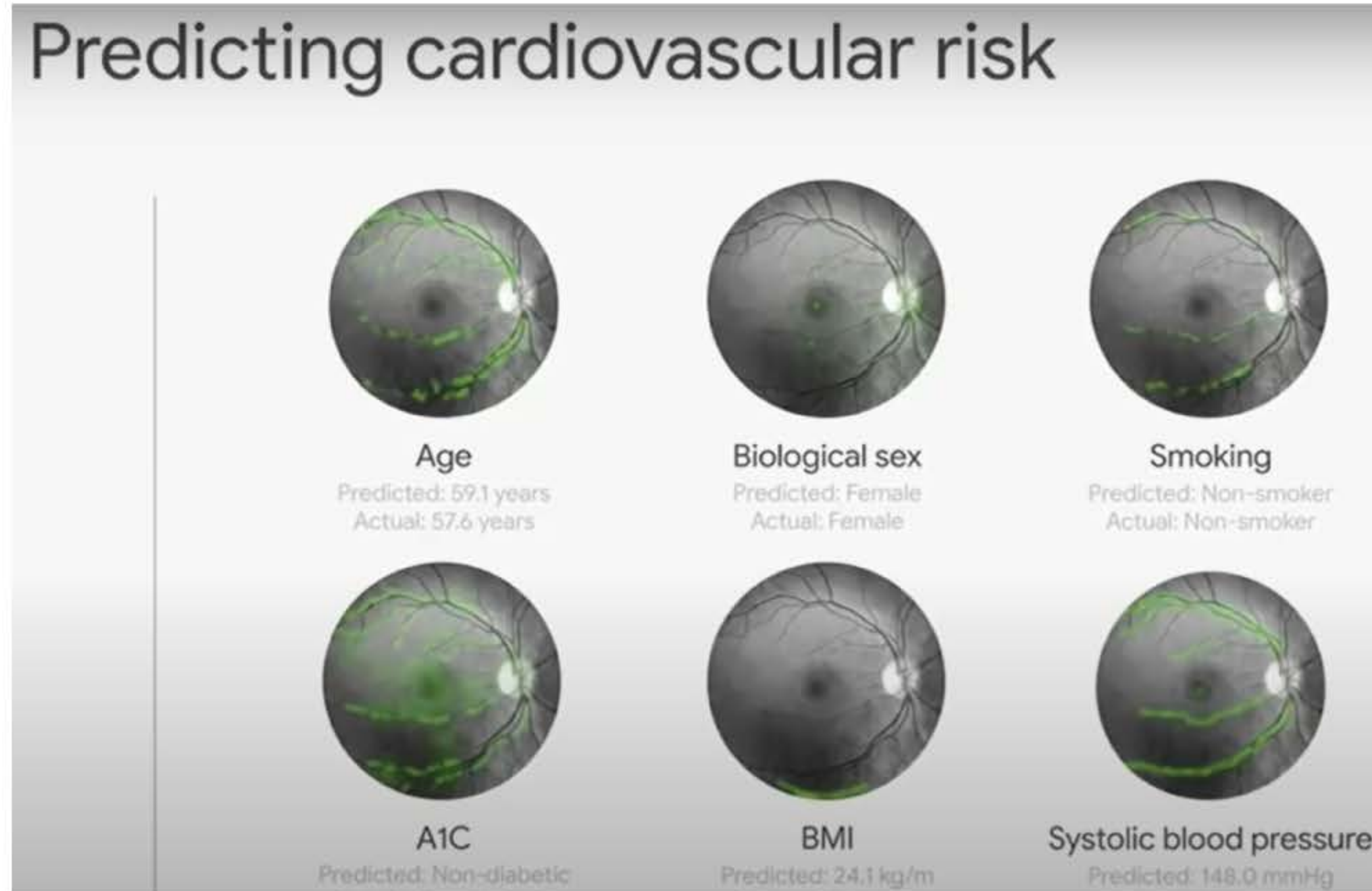


## Diabetes' cost to the Earth!

- 422 million people world wide suffer from Diabetes
- 1.5 million deaths are caused by Diabetes
- Majority living in low-and middle-income countries
- Cost of diabetes is now 825 billion dollars per year



## Tech Giants are working & emphasizing!



**Satya Nadella & Sundar Pichai Video**



## Our Tragedy



I lost my Grandma to diabetes, I don't want others' to suffer :(

**Accessibility 100 %**

We have come up with a life-saver product, will be available globally!



## Our Solution

**Non-invasive diabetes detection**



**Blood glucose / sugar levels**

**PAINLESS, CHEAP & FAST!**

- 1- Software end to end solution
- 2- Hardware end to end solution



## Our Solution



**Software end to end solution!**

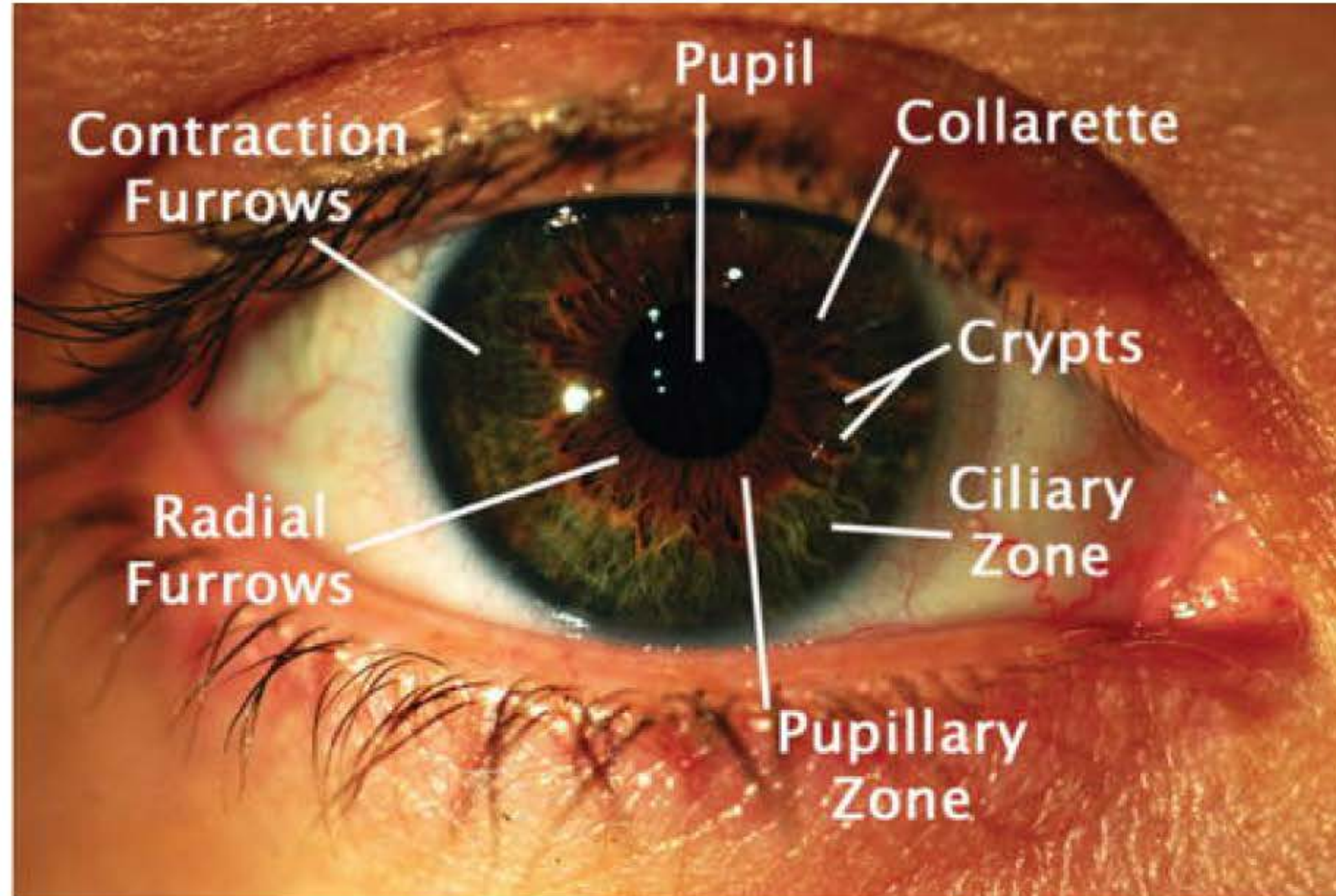


## Our Solution



**Hardware end to end solution**





**Eyes are the windows to our health!**  
**The only organ that allows non-invasive observation**




# Our Mobile / Web Apps



Diabetes Detection

FILE images.jfif



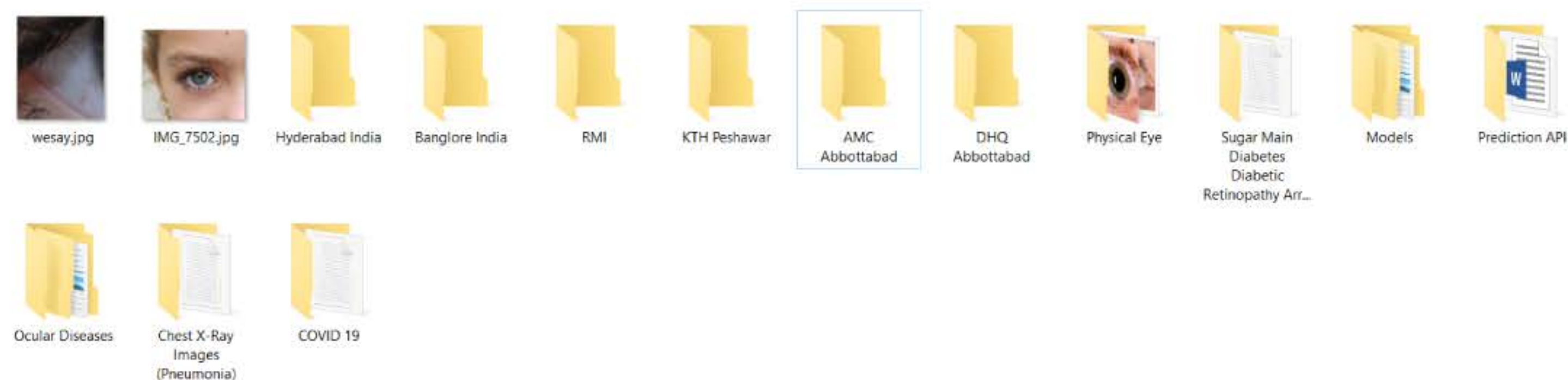
PREDICT ➤

Type of Diabetes	Accuracy
No Diabetes	99.87264%
Proliferative Diabetes	0.07250121%
Moderate Diabetes	0.042915397%
Severe Diabetes	0.008928361%
Mild Diabetes	0.0030084477%





# Our Datasets

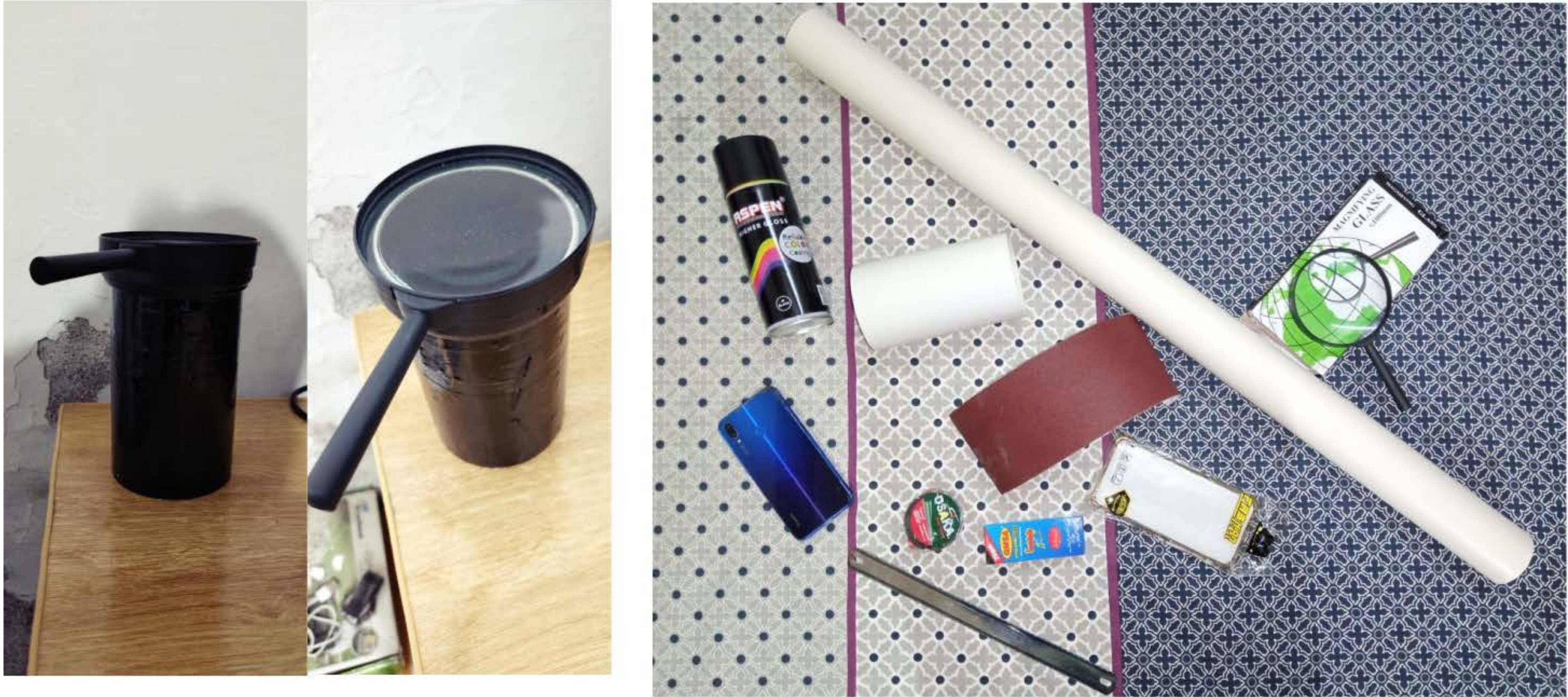


- DHQ | AMC Abbottabad, KPK, Pakistan
- KTH | RMI Peshawar, KPK, Pakistan
- Hyderabad, Telangana, India
- Bangalore, Karnataka, India

Our entire dataset is highly diversified!



## Our Customized Hardware



Customized Novel Concept of Fundoscopy  
**DIYretCam**



Industry standard Accuracy levels  
Business & Finance Mentoring  
Biotech mentoring for underlying bio

● HIPPA Compliance

● FDA Approvals

February 8, 2022 Ref:  
PML-H-2022-02-15

**SUBJECT: LETTER OF ENDORSEMENT FOR HEALTHCARE 360**

PML Hacks, the innovative arm of the Precision Medicine Lab (PML) located in Rehman Medical Institute (RMI), would like to put on record our endorsement for

**"Healthcare 360".**

This health tech startup idea is a final year project of a group of students at UET Peshawar and has been involved with us in various capacities, some listed below.

- PML's multi-disciplinary team of stellar researchers have mentored this project and team regarding the biomedical factors involved.
- PML's team of business, finance and marketing strategy have mentored and delivered various workshops to them notably on business model canvassing and design.
- Healthcare 360 pitched their project in PML's flagship health hackathon dubbed as *PML Hacks Innovation Challenge* and awarded them winners from UET Peshawar and extended them to the next round of the competition.
- PML team has found their product as novel, innovative and impactful which would prove to be an asset for the society. It would help create new technologies, more jobs, and develop a much-needed entrepreneurial ecosystem around healthtech in the region.
- We understand that as per the details shared by the team, it would be a worthwhile idea to execute globally.

We wish them all the best in their endeavors.

Feel free to contact me for more information.

Yours Sincerely,

Shahram Yusuf Khan  
Community Lead

We are clinically tested & approved as per industry accuracy levels!  
Precision Medicine Lab - RMI, Peshawar, Pakistan



# Lab Results



5/B-2 Phase - 5 Hayatabad Peshawar Pakistan.  
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jobs@rmi.edu.pk | www.rmi.edu.pk



AN AFFILIATE OF THE  
NATIONAL CENTRE FOR BIG DATA  
& CLOUD COMPUTING AT CECOS & RMI

R&D DEPARTMENT

Diabetes All in one for testing at PML

For Office Use Only

Lab test for:	Diabetes / BGLM
Called on:	December 23, 2021

Test Name	Result	Reference Range	Lab Used
a1C	134 mg/dL	TBR	Agha Lab
FBST	112 mg/dL	TBR	Rehman Lab #2
GTT	129 mg/dL	TBR	Shaheen Lab
RBST	133 mg/dL	TBR	Nusrat Lab
GST	123 mg/dL	TBR	Rehman Lab #1

Blood glucose monitors, glucometers / CGMs:

Device	
Accu-Chek Active glucometer	130 mg/dL
Abbott FreeStyle Libre	121 mg/dL
Dexcom G6 CGM	110 mg/dL

Tested Device:

Result: 143 mg/dL  
H-360

Test Name	Result	Reference Range	Lab Used
a1C	134 mg/dL	TBR	Agha Lab
FBST	114 mg/dL	TBR	Rehman Lab #2
GTT	139 mg/dL	TBR	Shaheen Lab
RBST	123 mg/dL	TBR	Nusrat Lab
GST	123 mg/dL	TBR	Rehman Lab #1

Blood glucose monitors, glucometers / CGMs:

Device	
Accu-Chek Active glucometer	130 mg/dL
Abbott FreeStyle Libre	126 mg/dL
Dexcom G6 CGM	117 mg/dL

Tested Device:

Result: 139 mg/dL  
H-360

Results: The underlying test device has a deviation of 56% & 68% compliance with mg/dL - 76% compliance with mmol/L

Lab test for:	Diabetes / BGLM
Called on:	December 23, 2021

Estimated:

Result*A1C Test	Fasting Blood Sugar Test	Glucose Tolerance Test	Random Blood Sugar Test
Diabetes	6.5% or above 126 mg/dL or above	200 mg/dL or above	200 mg/dL or above
Prediabetes	5.7 - 6.4% 100 - 125 mg/dL	140 - 199 mg/dL	N/A
Normal	Below 5.7% 99 mg/dL or below	140 mg/dL or below	N/A

Reference:

Result*A1C Test	Fasting Blood Sugar Test	Glucose Tolerance Test	Random Blood Sugar Test
Diabetes	6.5% or above 126 mg/dL or above	200 mg/dL or above	200 mg/dL or above
Prediabetes	5.7 - 6.4% 100 - 125 mg/dL	140 - 199 mg/dL	N/A
Normal	Below 5.7% 99 mg/dL or below	140 mg/dL or below	N/A

- ## Accuracy Results
- The underlying test device has:
- 68% compliance with mg/dL
  - 76% compliance with mmol/L
- ## Comparison based on
- 1- Lab Tests
  - 2- Blood Glucose Monitoring Devices



## ● Drug Regulatory License for the manufacturing of medical devices

**DRUG REGULATORY AUTHORITY OF PAKISTAN**  
**FORM-1**  
[see rule 4(2), 5(1), and 6(2)]

**APPLICATION FORM FOR GRANT OR RENEWAL OF AN ESTABLISHMENT LICENCE TO MANUFACTURE MEDICAL DEVICES**

I/WE Raja Ahmed (1) Nil (2) Nil (attach list of partners) Holder (s) of CNIC No. 13101-9862671-3 Owner of M/S Healthcare 360 hereby apply for Establishment Licence of my firm/company established under company/partnership Act 1976 Having NTN NA located at the premises as under NA

Sr. No.	Description	Particular		
1.	Purpose of application, whether;	Please select appropriate column		
(i)	Fresh/New Application	<u>Fresh</u>		
(ii)	For renewal of establishment licence to manufacture medical devices			
	(i) Licence number and date:			
	(ii) Validity date:			
	(iii) Last renewal date and its validity:			
	(iv) Attach certificate of licence and last renewal:			
(iii)	Proposed change of any particular of a licensed establishment (in case of any proposed change, please mention details of change)			
2.	Establishment details	Please provide detail against each where applicable		
(i)	Establishment name and address:	<u>H-360 / H-357/11, Murree Road, Attd.</u>		
(ii)	Type of ownership i.e. partnership, proprietorship, public limited, private limited etc:	<u>Proprietorship</u>		
(iii)	Business registration as issued by the Registrar of Companies or any other authorized body:	<u>Registrar</u>		
(iv)	Names of partners/proprietors/directors:	<u>NA</u>		
(v)	addresses of partners/proprietors/directors:			
(vi)	Date of establishment:	<u>January 8, 2022</u>		
(vii)	Details of premises (please provide triplicate detail layout plan with dimension):	<u>NA</u>		
(viii)	Details of section wise equipments and machinery for manufacturing and instruments for quality control:	<u>QA - passed</u>		
Sr.No.	Name of Equipment	Make	Model	Capacity
(1)	(2)	(3)	(4)	(5)
	<u>QA / Hard / Software / Mobile App</u>			<u>(1)</u>
3.	Detail Of Qualified technical Person			

(Attached copies of CNIC, Photographs, Degrees, Experience Certificate and Certificate of Concerned council)	
(a)	Names of production incharge for supervising manufacturing processes <u>Engr. Noorina Saad / Prof. Dr. Laig Hassan</u>
	Qualifications of production incharge <u>PHD</u>
(b)	Names and qualifications of quality control incharge for supervising quality control department <u>Director</u>
	Qualifications of quality control incharge for supervising quality control department <u>NA</u>
(c)	Other technical staff working in these departments: <u>Website / Mobile</u>
4.	Proof of fee deposited:
5.	Details of medical devices intended to be manufactured:
6.	Any other relevant information that may be required by the MDB. <u>Diabetes / Sugar / Eyes.</u>

### DECLARATION

Certified that the documents and information provided herein are genuine and correct and if found at any stage to be misrepresenting or incorrect it shall lead to legal action under the Drug Regulatory Authority of Pakistan Act, 2012 and the rules made there under. This certificate must be on stamp paper duly notarized and signed and stamped by Proprietor, Chief Executive, Managing Director or an authorized officer. In case of an authorized officer authority letter from the owner of the establishment shall be provided.

Name(s)..... Raja Ahmed  
Designations.....  
Signature(s)..... TPU the process  
Stamp.....  
Date..... QA - passed

Note: This form shall also be used if change is proposed regarding the particulars provided in relation to the licensed establishment to manufacture medical devices. For this purpose, provision of relative information is mandatory.

- Provide readable softcopy along with application in USB/CD



We have submitted & QA passed for the form-I for license!  
We are undergoing testing & quality assurance by DRAP



## We are a complete Microsoft Product!

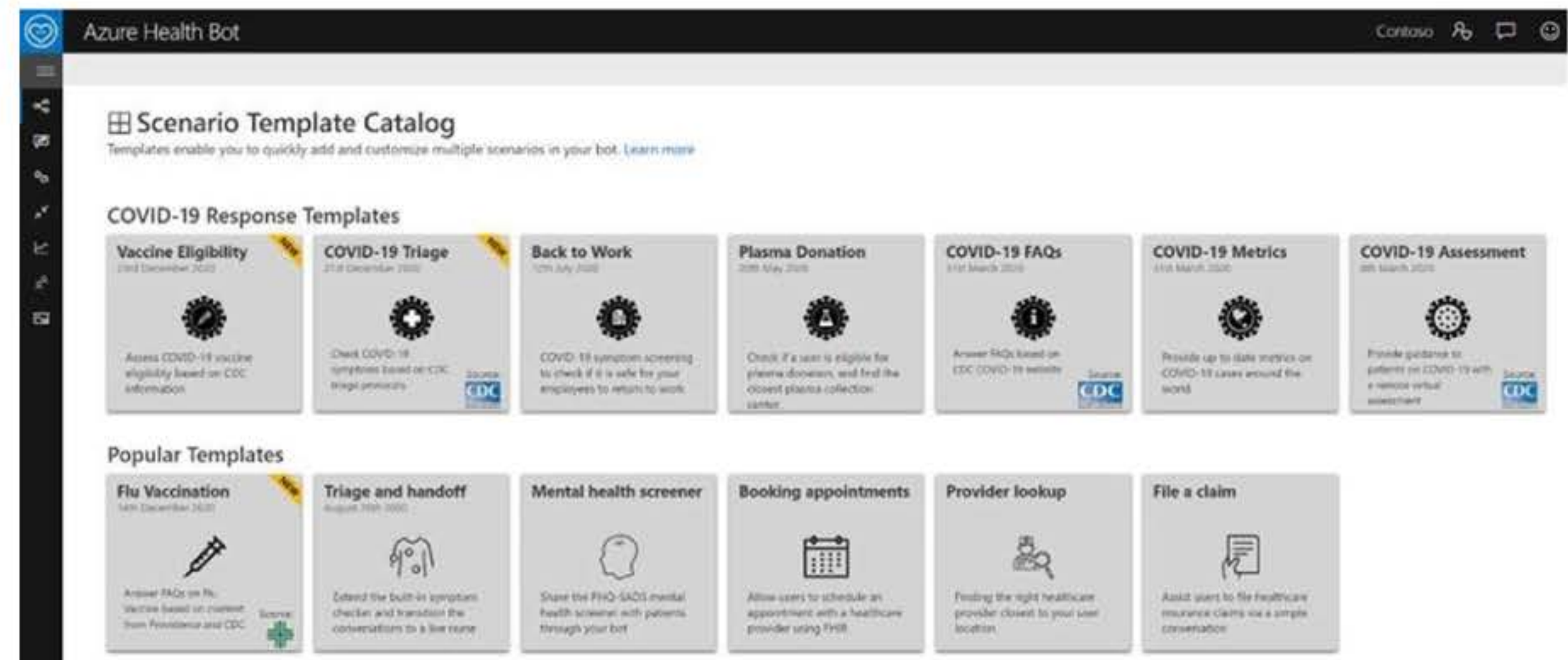
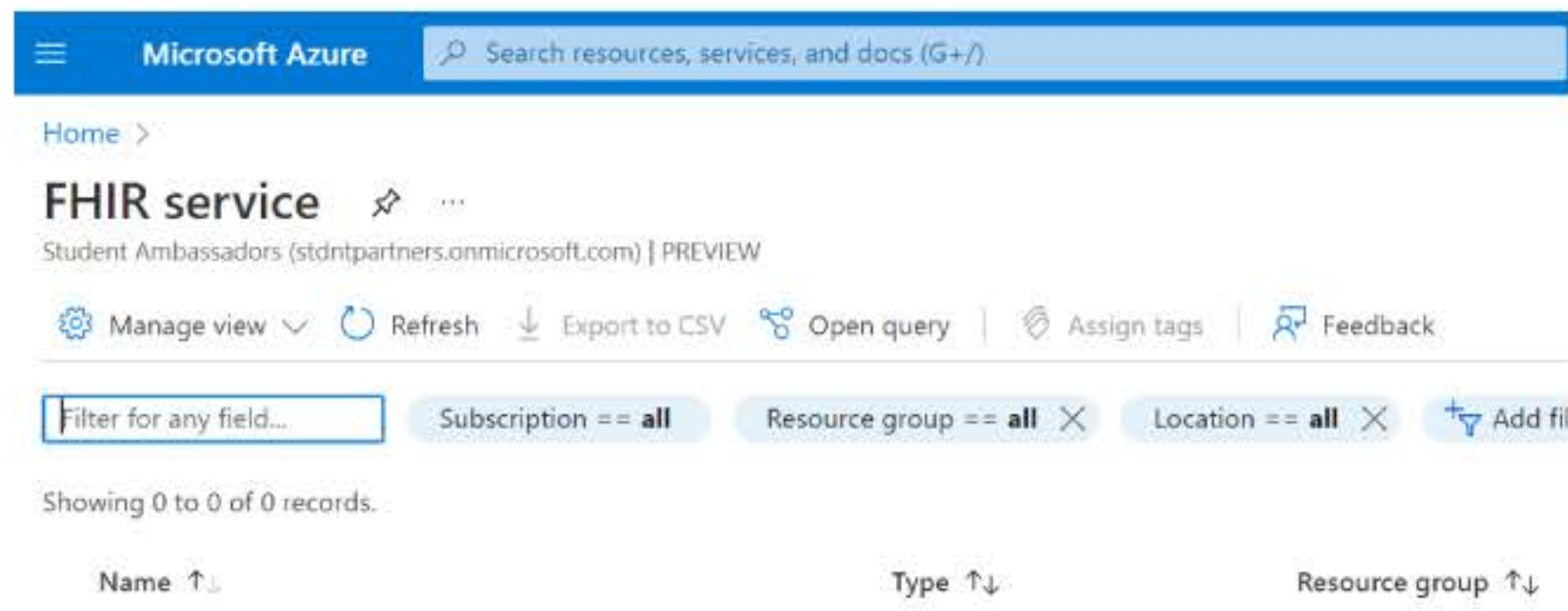
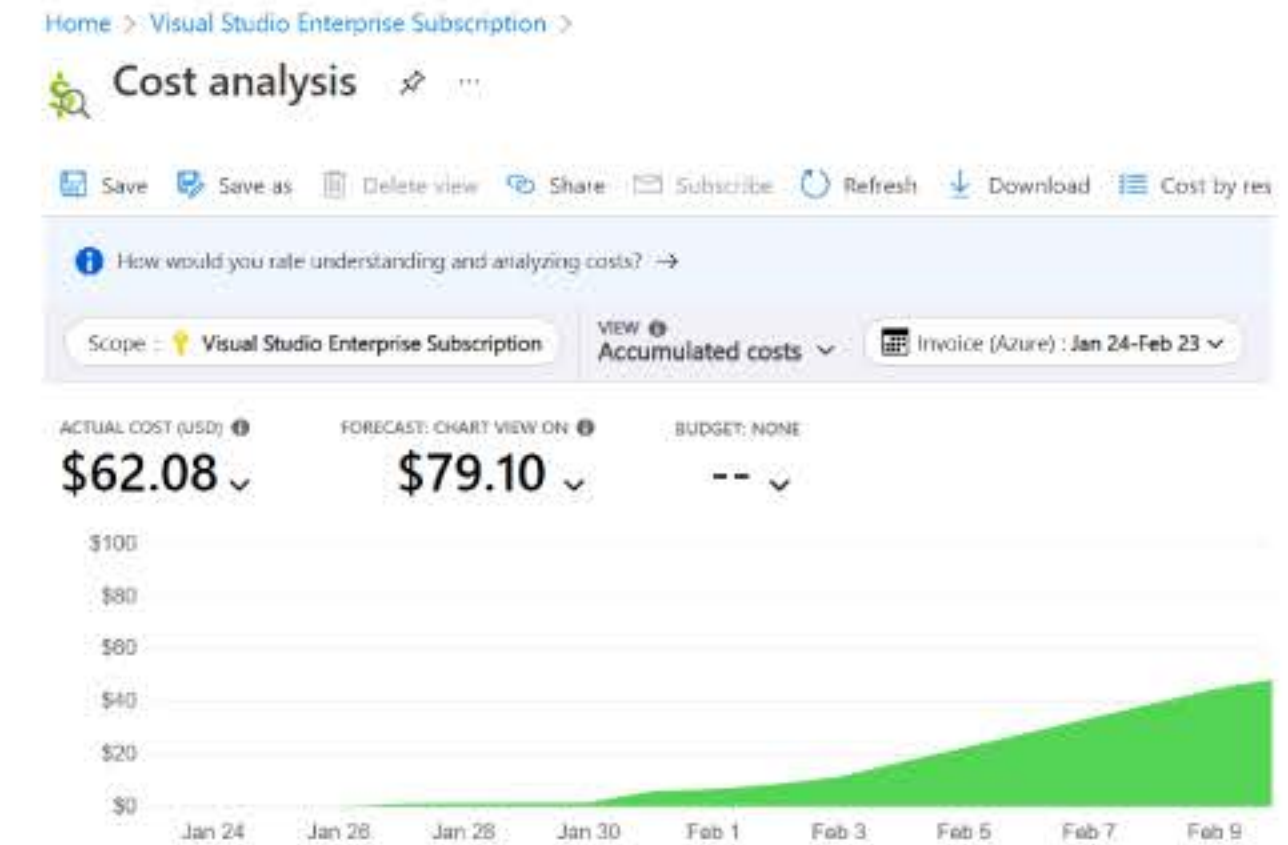
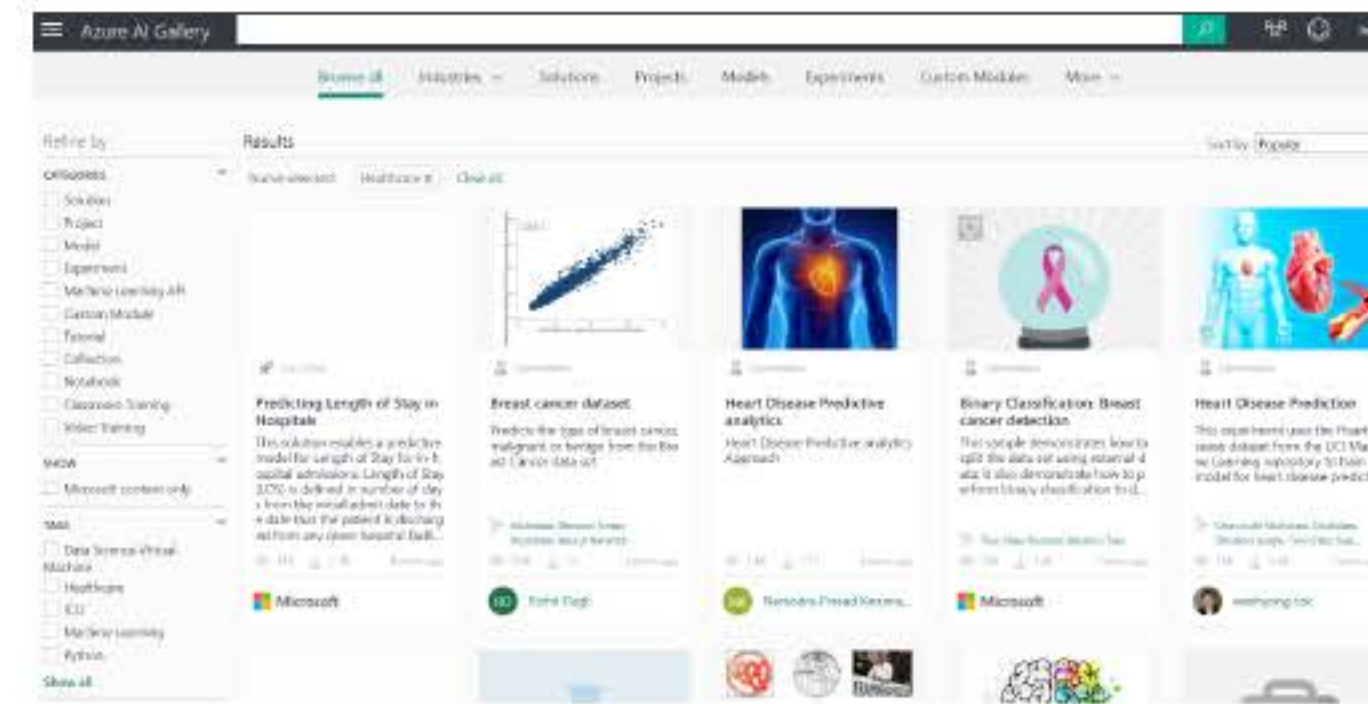
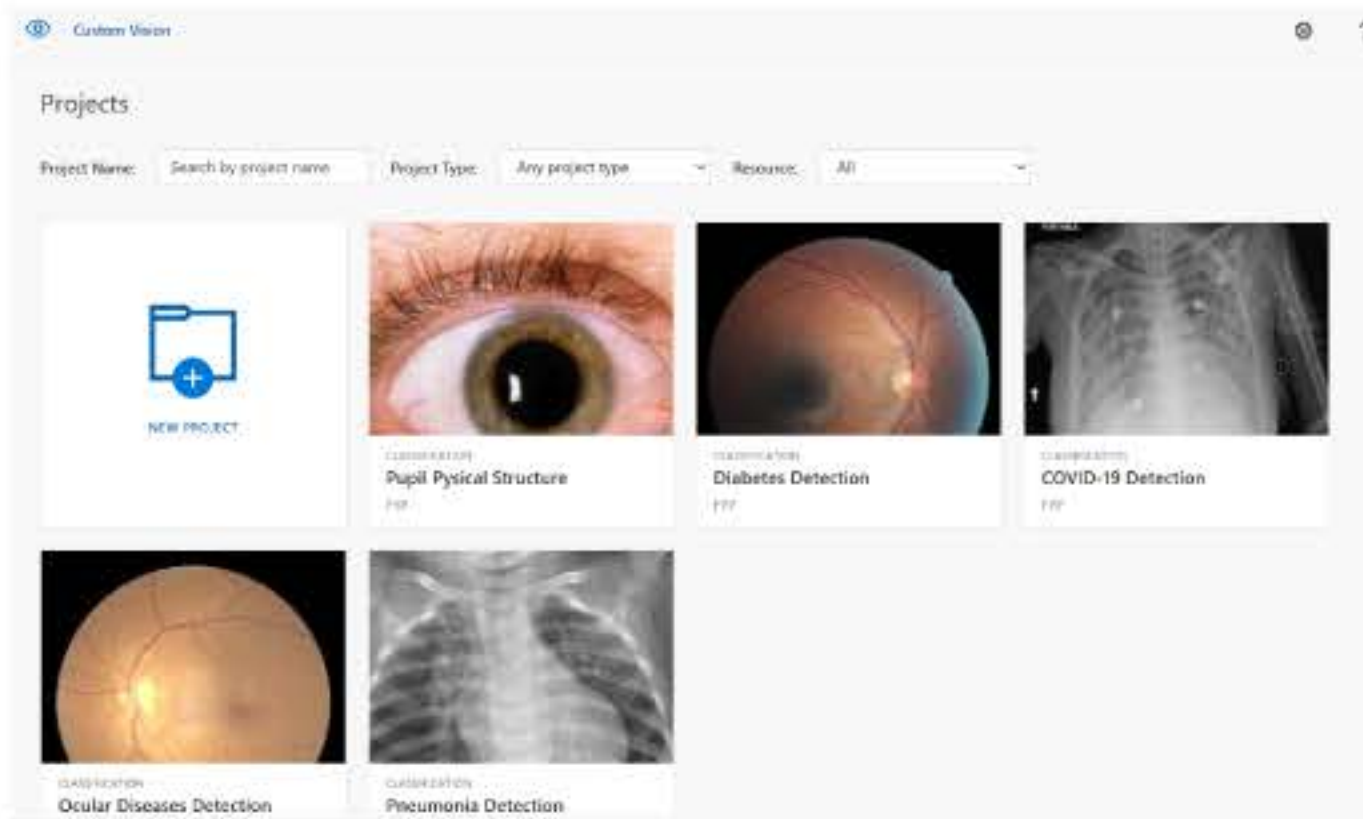
- Microsoft Azure
- Microsoft Power Platform
- Azure FHIR (Blockchain)
- Azure Healthcare API
- Azure Cognitive Services
- Azure Custom Vision
- Azure Health Bot
- Azure Face API
- Azure Health Marketplace Etc.

## Azure is #1 public cloud in Healthcare!





# Azure Services



# We are using almost 30+ Azure Services!



## Our Outreach Hustle



Mr. Nouman Optician  
(DHQ Hospital Abbottabad)

Helped us in understanding various underlying biology  
25+ years of experience in ophthalmology & Diabetes

- DHQ Hospital Abbottabad
- Ayub Medical Complex Abbottabad
- Jinnah Hospital Abbottabad
- KTH Peshawar
- LRH Peshawar
- RMI Peshawar



Mr. Shreyan Fernandes  
(Biomedical Engineer, MIT)

Helped us in various tech issues regarding Azure  
Connected us with several folks, Indeed a mentor!



## Achievements in BioTech



**We are the winners of Hackathon PML-Hacks!  
Precision Medicine Lab – RMI, Peshawar, Pakistan**





## Our Achievements

- We contributed to Microsoft's GitHub (Azure Custom Vision)
- I am the Healthcare League Leader
- All team mates are MLSAs
- Endorsed by Healthcare advocates (MLSA)

Re: [microsoft/Bing-COVID-19-Data]  
(#50) Inbox x

**Henry F.** <notifications@github.com> [Unsubscribe](#)  
to microsoft/Bing-COVID-19-Data, me, Author ▾

**@HenrySoftwareStudio** approved this pull request.



## Our Research Article

Pro mobile application to adjust focus, exposure, and light intensity manually. This allows having better quality fundus images in clinic settings for both under anesthesia and awake conditions. Another very simple smartphone-based design is the iExaminer system of Welch Allyn [6]. It is developed by attaching a smartphone to a PanOptic ophthalmoscope as shown in Fig. 1b. These systems require attaching the smartphone to an existing medical device. Recently, new smartphone-based retinal imaging systems are released to the market including D-Eye, Peek Retina, and iNview. These smartphone-based retinal imaging systems are bundled with associated secure HIPPA-compliant mobile application for image capture and transmission. In addition, iExaminer, D-Eye, and iNview have the Food and Drug Administration (FDA) approval for their devices. However, Peek Retina is currently waiting for the approval from FDA.

Russo et al. [7] developed the D-Eye, a small, portable, and inexpensive retinal imaging system to capture retina images as an attachment to a smartphone. Using the cross-polarization technique to reduce corneal reflections and integrated with smartphone's autofocus feature to prevent patient's refractive error, D-Eye allows retinal eye screening even for undilated eyes. To illuminate the retina, D-Eye reflects the smartphone flashlight as shown in Fig. 1c. Peek Retina imaging system [8] includes its own light to illuminate the retina and the image is captured by a smartphone as shown in Fig. 1d. To capture wide-angle retinal images, Volk Optical developed iNview smartphone-based retinal imaging system [9] as shown in Fig. 1e. It illuminates the retina by reflecting the smartphone flashlight and does not require pupil dilation to acquire 50 degrees of retinal view to visualize



We have our own research paper in publishing phase!



## Diversity & Inclusion

- Gender Diversity
- Religious Diversity
- Language Diversity
- Terrain Diversity



## Team Stakes

Affifa,  
the Research & Development Lady

Ashley,  
the  
development lad



Fatima,  
the BioTech Lady

Ahmed,  
the  
team lead



# Market Research



Easy Glucose



**HEALTHCARE 360°**

• Empowering Lives Via Technology •

Healthcare 360

Without using any sort of lens, our software end to end product beats other platforms by 30% as we get a better accuracy with naked camera!





## Revenue Model

### 1- time cost

A full-fledge end to end product under 10,000 Rs/-

#### Silver Plan

1- week  
Free/-

#### Gold Plan

Bi-weekly  
Rs- 499/-

#### Platinum Plan

Monthly  
Rs- 999/-

Hardware + Software

**We are the first & fast movers!**



## References

- BMC Bio-informatics (smartphone-based ocular imaging systems for diabetes detection using deep learning)
- Do it yourself smartphone fundus camera – DIYretCAM
- Nature (Automated diabetes detection in smartphone-based ocular photography using artificial intelligence)