amplifai

# Amplifai Health

Leveraging AI and thermal imaging for early disease detection.

SFDA
الهيئة العامة للغذاء والدواء
Saudi Food & Drug Authority

International Organization for Standardization
ISO
13485
Quality Management System

## Vision

to Amplifai senses for healthier lives.

## Mission

to leverage AI driven thermography and make proactive health diagnosis accessible worldwide.

# Executive Summary

Diabetic Foot Ulcers (DFUs) are a significant burden on healthcare systems worldwide, leading to severe complications, including amputations, and placing immense pressure on public resources.

Addressing these challenges with early detection solutions is critical to improving patient outcomes and reducing overall healthcare costs.

## Challenges

Every 20 seconds a limb is amputated worldwide mainly due to the prevalence of Diabetic Foot Ulcer.
In Saudi Arabia alone, DFU-related costs reach about $7.5 billion annually.

## Causes

Late diagnosis is to blame.
Current early detection tools are inaccessible and costly.

## Solution

Early detection can reduce the risk of amputation by up to %80.
We offer a non-contact, portable, painless, and safe imaging technique to provide objective and instant DFU evaluation.

# Diabetes

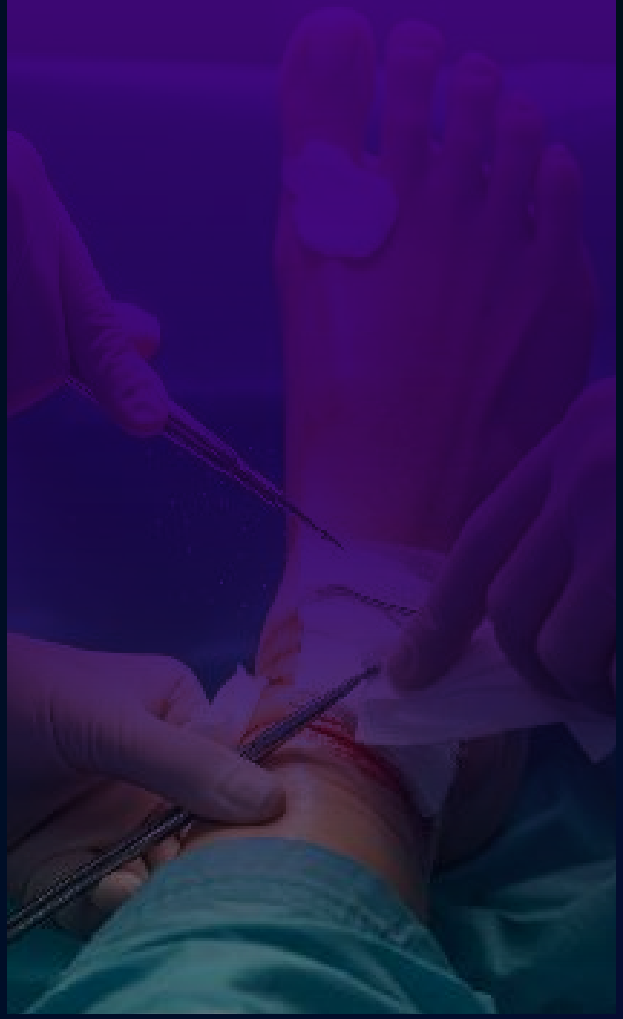
Despite advances in medical therapies, the prevalence of diabetes mellitus and diabetes-related complications continues to rise. One of the most common complications of diabetes is diabetic foot ulcer (DFU).

- Diabetes affects 1 in 10 adults worldwide and 1 in 4 in Saudi Arabia.
- One-third of people with diabetes will develop a DFU.
- This leads to a lower limb is amputation that happens Every 20 seconds globally.

# Diabetic Foot Ulcers

- The mortality risk at 5 years for individuals with diabetic foot ulcers is 2.5 times higher than for those without ulcers.
- Recurrence is common and is estimated to be %40 within one year, %60 within three years, and %65 within five years (Armstrong et al., 2017).
- Diabetes foot care costs are the single largest category of diabetes-related medical costs. about 1 third of it .
- The cost of care for patients with a foot ulcer is 5.4 times higher than that for diabetic patients without ulcers.

# Importance of Early Detection



- It is estimated that one-third of people with diabetes will develop a DFU during their lifetime (Armstrong et al., 2017).

- Unfortunately, even after a DFU has been resolved, recurrence is common and is estimated to be %40 within one year, %60 within three years, and %65 within five years (Armstrong et al., 2017).

- Diabetes foot care costs are the single largest category of diabetes-related medical costs. Driver et al. (2010) found that the cost of care for patients with a foot ulcer is 5.4 times higher than that for diabetic patients without ulcers, accentuating the heightened financial burden linked to DFUs.

# Current Challenges

## Patient

Diabetic Foot Ulcers (DFUs) are a significant concern, affecting %25-15 of diabetic patients over their lifetime.

Despite this, many patients do not have consistent access to early screening tools that detect problems before they escalate.

### Proactiveness

Not all patients recognize the importance of early foot screenings due to:

- Limited communication with healthcare providers.
- Belief that foot checks are only needed when symptoms are present .
- Socio-economic factors that hinder proactive care .

The longer a patient has diabetes, the higher the risk:

- 10 years: ~%15 risk of DFU
- 20 years: ~%25 risk of DFU Untreated DFUs can lead to amputations.

### Accessibility

Appointments for DFU detection often take time due to a shortage of specialized providers :

- Only 1 podiatrist per 50,000 patients in some regions .
- A limited number of clinics offering non-invasive screening .

Many diabetic patients face barriers :

- Difficulty in traveling to clinics for regular checks.
- Reluctance due to invasive traditional methods.

# Current Challenges

## Stakeholders

Diabetic Foot Ulcers (DFUs) account for about a third of diabetes-related healthcare costs.

Late diagnosis often leads to severe complications, including infections and amputations, further escalating treatment expenses. Early detection and intervention are crucial to mitigate these challenges and improve patient outcomes.

### Healthcare Providers

**Resource Allocation :**

Managing DFUs requires substantial resources, including specialized staff and equipment.

**Workload :**

Managing DFUs requires substantial medical resources, including specialized staff and equipment.

### Government

**Economic Impact :**

DFU treatments make up to a third of diabetes-related costs, impacting budgets.

**Public Health Concern :**

DFU prevalence affects national health, requiring better management.

### Insurers

**Financial Pressure :**

High treatment costs increase claims and strain resources.

**Preventative Incentives :**

Early detection helps lower long-term costs.

### Caregivers

**Emotional and Physical Stress :**

Caring for DFU patients can lead to fatigue and stress.

**Time Demands :**

Medical appointments and daily care affect personal and work life.

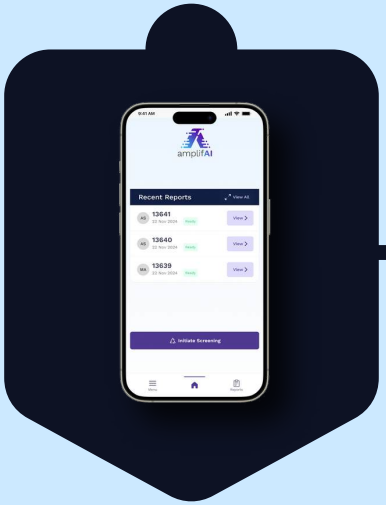
# The Solution

## **TFscan** (Thermal Foot Scan)

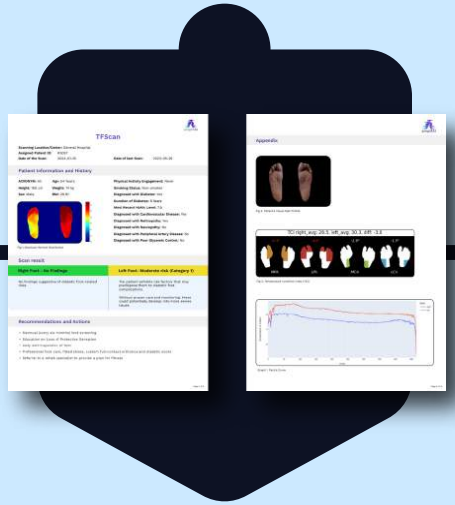
is a non-contact, painless, portable, and safe imaging technique to provide objective and instant DFU evaluation.

## Ecosystem Elements

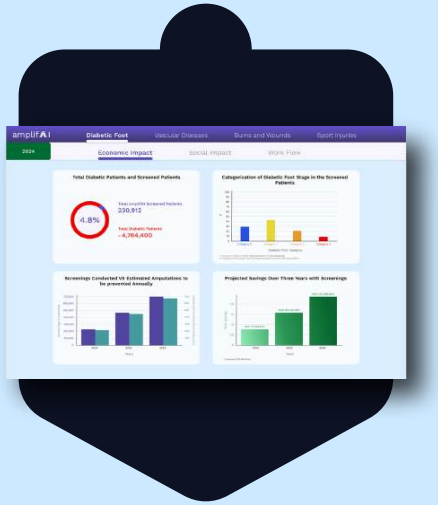
**Thermal Camera**




**AI-powered application**




**Patient Report**




**Clinical Portal**

# Thermal Camera

## High-Resolution Imaging

It reveals temperature variations, providing critical data for early detection and monitoring.

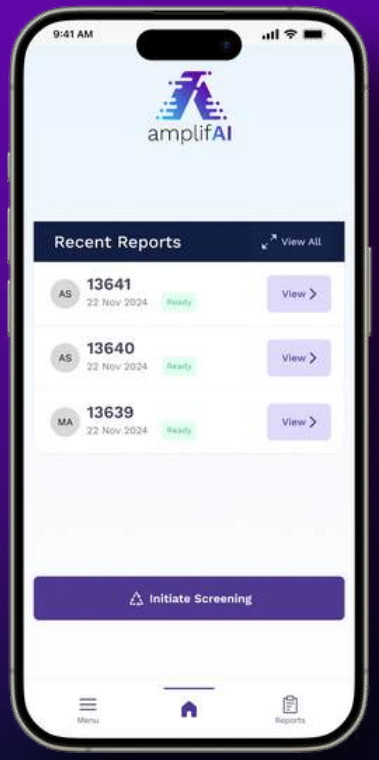
## Ease of Use

Portable and straightforward. Users at all levels of expertise can master it in minutes.

## Non-Invasive Screening

Provides safe, non-invasive, and non-ionizing screening.

# AI-Powered Application




## Instant Report Generation

Produces comprehensive reports immediately after scanning, summarizing findings and risk levels.

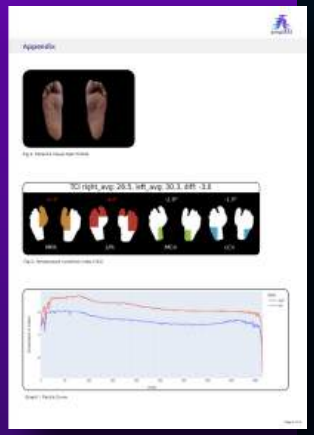
## Advanced Pattern Recognition

Utilizes sophisticated algorithms to analyze temperature variations and detect risk areas, addressing the growing need for automated thermography.

## Objective Analysis

Provides consistent, data-driven results reducing reliance on thermographers and supporting clinical decision-making with actionable insights.

# Patient Report

## Personalized Summaries

Provides individuals with clear, understandable feedback on their health status based on thermal scans.

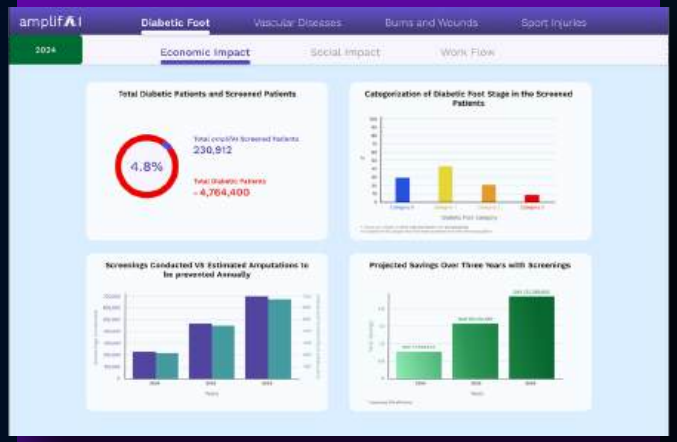
## Preventative Care Support

Aids clinicians in advising patients on proactive measures to prevent complications.

## Guided Next Steps

Includes clear, actionable recommendations tailored to each patient’s condition, such as risk level, recommended screening frequency, and suggested interventions.

# Clinical Portal




## Efficient Patient Management

Simplifies the referral process and supports coordinated care pathways for optimal outcomes.

## Seamless Integration

Fits easily into routine patient check-ups and connects with electronic medical records (EMRs) without disrupting workflow.

## Centralized Dashboard

Provides a unified view of patient data, including thermal scans, AI-generated analyses, and historical trends for easy tracking. It also include aggregate data viewing for analyzing trends and

# Workflow

## Thermal Imaging

Any healthcare worker captures images using the thermal camera connected to TFScan software, seamlessly integrating into routine workflow.

## Clinician Review

The clinician reviews the report with the patient and recommends preventive measures or specialist referrals as needed.

1

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## Patient Check-In

Patients attend their check-up at the clinic. While waiting patient prepares for foot screening by removing footwear.

## Automated Instant Analysis

TFScan provides an instant, objective evaluation and generates a comprehensive report highlighting risk areas. Giving recommendations and Actions

## Ongoing Monitoring

Scan results are stored in the patient's profile for long-term tracking and informed care in future visits.

# Conclusion

TFscan represents an advancement in diabetic foot care. Its potential to transform the early detection of DFUs offers significant benefits, including cost savings, improved accessibility, and streamlined healthcare workflows. We strongly recommend considering TFScan for integration into diabetes management protocols, recognizing its potential to save limbs, improve lives, and enhance healthcare efficiency.

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