



OASIS: AI-Assisted Teledentistry Software for Oral Cancer Screening

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Abstract- Oral Assessment and Screening Interactive System (OASIS) is a web-based and mobile-responsive teledentistry software for oral cancer screening. OASIS facilitates early detection of oral cancers by: 1) connecting general dental clinicians with specialist consultants; and 2) providing immediate AI predictions. Detecting early signs of oral cancers quickly and accurately can significantly reduce the burden on the health care system while enhancing the quality of life for patients.

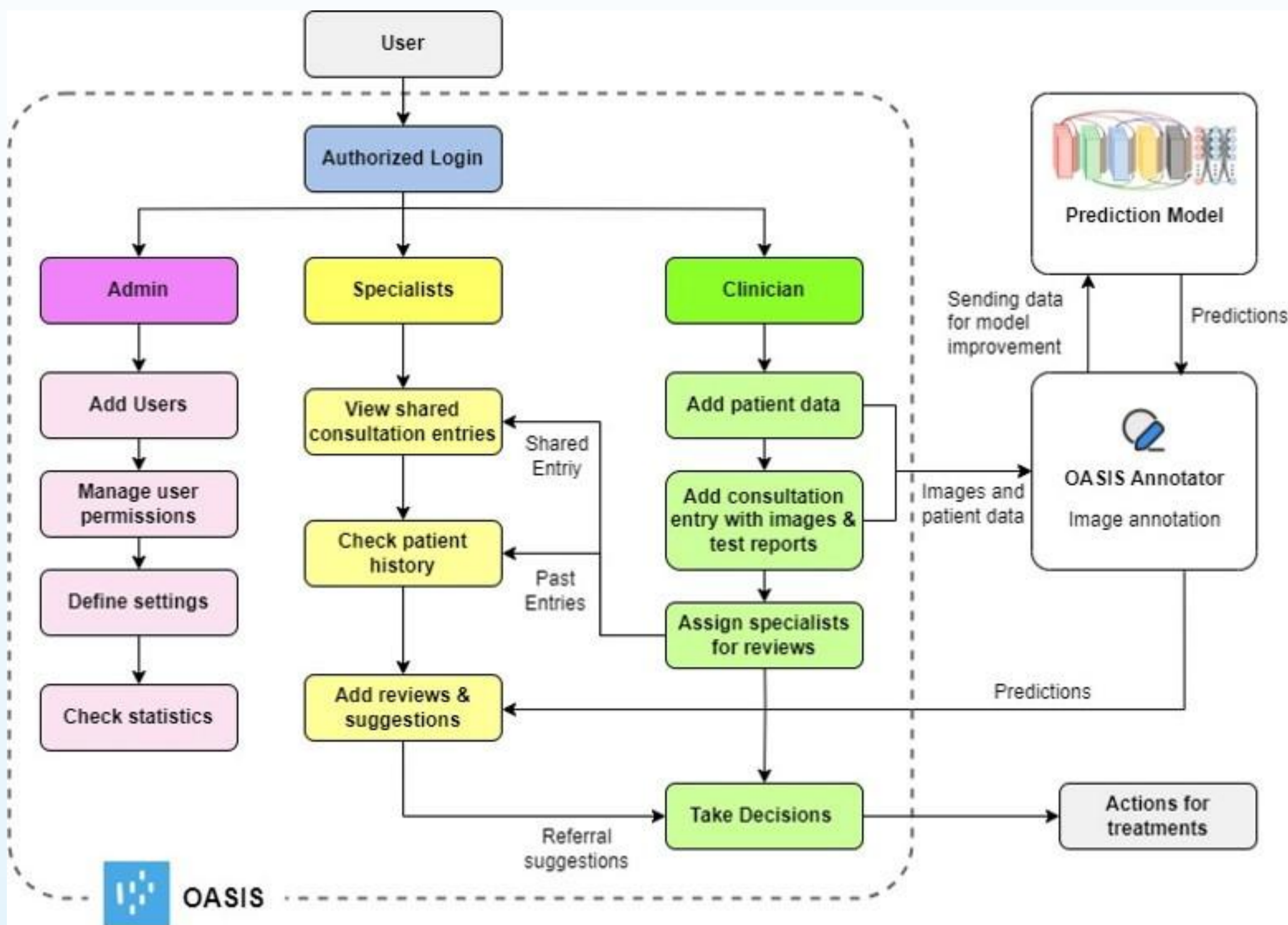


Figure : Dataflow of the application

Table : Users and their roles

User	Role
Admin	<ul style="list-style-type: none"> Add clinicians and assign permissions Manage user inputs Generate statistics and reports
Clinicians	<ul style="list-style-type: none"> Add and manage patient data Add consultation entries with oral cavity images with lesion annotations and test reports Share consultation entries with one or more specialists Generate and download patient reports from entries
Specialists	<ul style="list-style-type: none"> View shared entries and patients' past records Add referral or review suggestions Assign more specialist to review shared entries

AIM:

Gather, manage, and transmit patient data to specialist consultants in an effective manner, and enabling data integration into predictive models for the early detection of oral cancers.

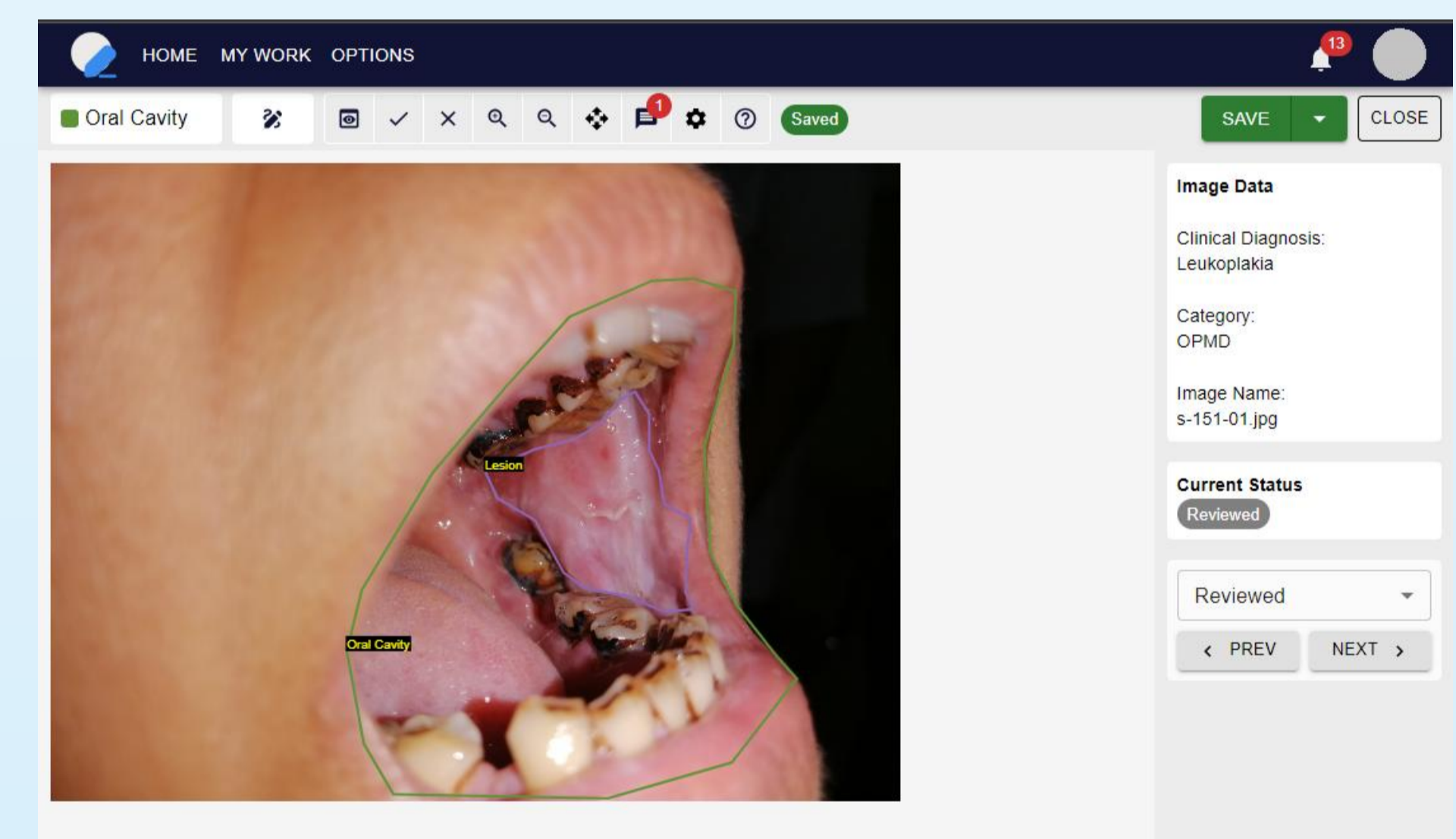
Security Features:

- Secure server access is restricted to authorized users approved by the administrator.
- Permission-based access & data management authorization.
- Specialists/clinicians can view only shared data, not entries added by others.

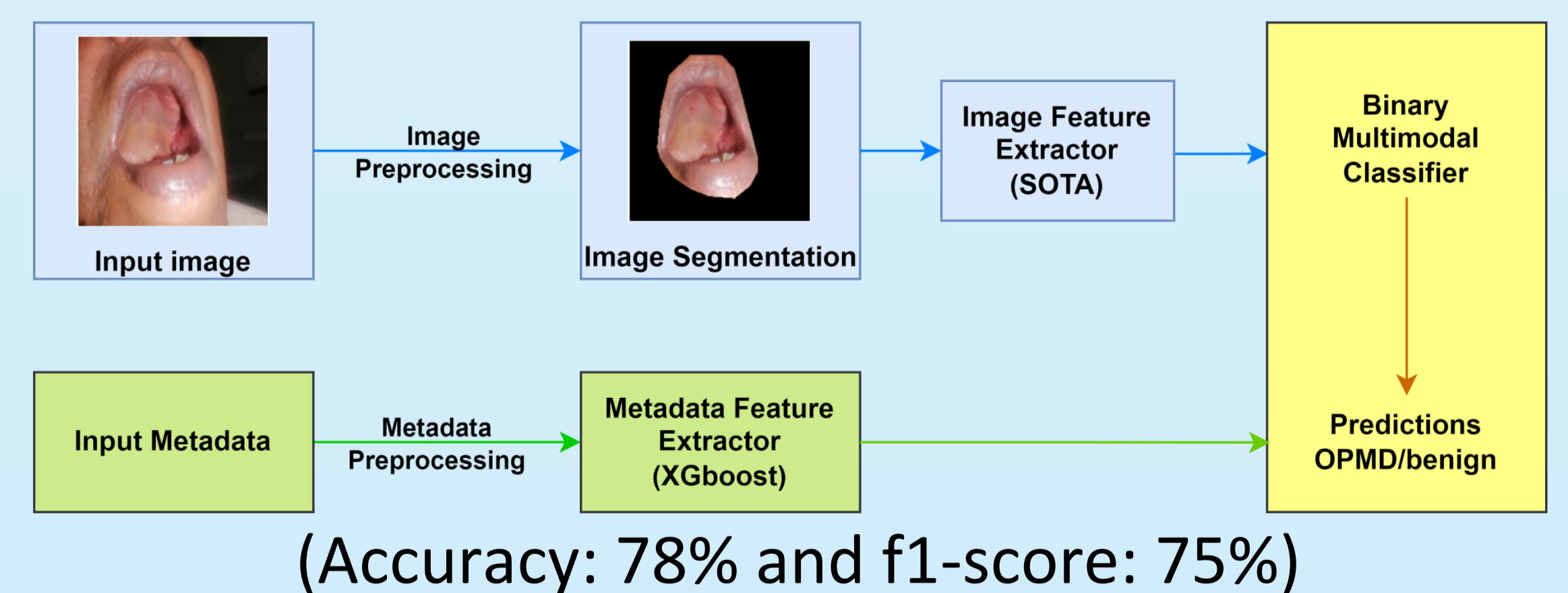
Expandability:

- Utilize aggregated patient data for trend analysis and oral disease Insights.
- Continually enhance cancer prediction and referral suggestions through integrated AI.

Annotation Tool



Prediction ML Model



Progress:

The OASIS software is developed by the Faculty of Engineering and the Faculty of Dental Sciences at the University of Peradeniya, aiming to be deployed in the public healthcare system. The software development utilizes modern technologies and is currently hosted at the Faculty of Engineering servers. Software is in the mid-stages of development, and a pilot trial will be conducted soon.

Fund Requirements:

Funding will be needed for finishing the software to industry standards and commercialization, as well as software deployment and maintenance. State support is needed for the public deployment in the healthcare system.

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