HEALTHCARE INNOVATION CHALLENGE 2|USE CASE COMPENDIUM

Details of Use Cases nominated by Healthcare Providers for Healthcare Innovation Challenge # 2

NASSCOM
Center of Excellence-IoT & AI
A MeitY Initiative with Govt. of Karnataka, Haryana, Gujarat & AP

HIC
Healthcare Innovation Challenge

LHIF
Life Sciences & Healthcare
Innovation Forum

USE CASE CODE	USE CASE DESCRIPTION	USE CASE SPONSOR
ONCO	AI assisted diagnosis in histopathology for early diagnosis of cancer (Breast, Cervical, Oral & prostate)	RAJIV GANDHI CANCER INSTITUTE & MICROSOFT

USECASE DESCRIPTION:

With cancer cases increasing significantly in India, AI assisted diagnosis in histopathology can not only improve productivity of pathologists but also early diagnosis of cancer: (Breast, Cervical, Oral & prostate are dominant)

Ability of AI for:
1. Diagnosis classification (binary classifier to predict tumor vs. normal) and feedback to order additional information
2. Automated image classification and detection of relevant image information by themselves without any labeling can improve pathologist productivity significantly.

USE CASE CODE	USE CASE DESCRIPTION	USE CASE SPONSOR
EDx	Centralized Tele-Radiology Reporting	KIMSHEALTH

USECASE DESCRIPTION:

KIMSHEALTH has hospitals and wellness centres located in Kerala and the GCC. Many of these centres provide radiology services and these studies are reported locally at each centre. This leads to different standards for reporting, TAT etc. at each centre, and inefficient and distributed usage of the radiologist's expertise.

The vision is to have a centralized radiology reporting centre in the main hospital from where all the radiology studies can be accessed and reported. This will lead to standard process and outcome, and improve reporting process, accuracy, TAT, accessibility, efficiency, research possibilities etc. The centralized Radiology reporting will have multiple components and the technology solution plays a very critical part in this.

It needs to address some key areas like:
- **Integrate with multiple PACS/RIS system**
- **Accept radiology studies from multiple centres and push reports back**
- **Scheduling of radiology studies with Radiologist roster**
- **Use industry standards like DICOM**
- **Data privacy compliance - anonymization, security etc.**
- **Support for multiple modalities - XRAY, MRI, CT etc**.
- **Support/Provide the supporting infrastructure for this (hardware & anon)**
- MIS/Efficiency Reports/TAT/ Management Dashboards
- Handle complaints and re-reporting needs
- Data extraction and integration capability
- Usage of AI tools for aiding diagnostics

The outcome would be an integrated centralized radiology reporting centre where the radiologists can be co-located to provide reporting service across the global 24/7 to all KIMSHEALTH centres

Existing Infra / Systems:
- PACS /RIS: Fuji & Mediff
- HMIS: Yasasii (India) & Intuit (ME)
- AI tools: Qure.AI for CXR being used
- Deployment Model - Cloud preferred

USE CASE CODE	USE CASE DESCRIPTION	USE CASE SPONSOR
RPM	Homecare - Monitoring Solutions	KIMSHEALTH

USECASE DESCRIPTION:
KIMSHEALTH has an active homecare division which provides at-home medical care for our guests. This involves homecare personnel vising the patients at home, providing the service and coming back. The engagement and treatment is limited to that brief window. They would like to extend this care window to much longer, especially for patients that need prolonged care - like post-operative patients, chronically ill patients etc.

The vision is to provide home care patients with devices and solutions that can allow us to:
- **Monitor patient's key vitals which will be streamed to the cloud/hospital**
- **Type of biomarkers: Temperature, SpO2, Respiratory Rate, pulse, ECG, BP etc**
- **Type of device: wearables for continuous monitoring**
- **Track patients' progress/vitals chart/medication/treatment etc. - possibly a mobile App**
- **Ability to initiate a tele-consult with their doctor or nurse**
- **A central monitoring station at the hospital to monitor all homecare patients with ability to zoom in on specific patients**
- **Automated alerts on changed medical state, patient deterioration etc.**
- **Ensure data privacy and security**
- Scheduling visits from home care team
- Usage of AI tools to predict patient condition and pre-alert before actual event
- Connected portable diagnostic machines that can be carried by the homecare team, and ability to integrate this with the feed to the central monitoring station (integrate with connected medical grade devices carried by HCPs)
- Integrate with market standard Hospital Information Systems
- The solution should also provide MIS reports and management dashboards

USE CASE CODE	USE CASE DESCRIPTION	USE CASE SPONSOR
EMR	Intelligent Clinical Assistant - Translating unstructured Data from Legacy EMR into structured data	SANKARA NETHRALAYA

USECASE DESCRIPTION:
Autonomous & Semi-autonomous Digital assistant integrating with Legacy EHR. The solution should have the following capabilities:
- **Translating unstructured Data from Legacy EMR into structured data using SNOMED CT**
- **Integrate into Legacy EMR Prospectively help Clinician to suggest SNOMED codes using NLP and AI and help improving better coding**

- **Retrospectively using NLP and AI to Code the EMR records to make EMR records use for better analysis.**
- **Should have Open source architecture**
- Develop Visual analytics of the Structured data

Integration Capabilities:
1. API based integration with a legacy EHR / EMR
2. Must be compatible with the current tool sets published in the CDAC website: https://www.cdac.in/index.aspx?id=hi_hs_medinfo_csno_overview
3. Software Development Kits (SDKs) for EHR standards: https://www.nrces.in/services/tools-and-technologies

USE CASE CODE	USE CASE DESCRIPTION	USE CASE SPONSOR
RAD	Integrating radiology reports and images in to multimedia files	MAHAJAN IMAGING

USECASE DESCRIPTION:
Radiology reports are not very patient friendly. A solution that can translate radiology reports with complex medical terms into a patient friendly language and integrate relevant images and videos based on the radiology text report in to a multimedia file. Images and reports can be send through an API to cloud server or the solution can be deployed (preferable) as a Docker container in a local system. One modality and one body part can be chosen initially to build a prototype - say CT Chest in patients with interstitial lung disease or MR spine for degenerative disc disease.

USE CASE CODE	USE CASE DESCRIPTION	USE CASE SPONSOR
OT	OT Booking, PAC ,OT utilization, equipment assignment and TAT record	ZYDUS HOSPITALS

USECASE DESCRIPTION:
Hospitals always struggle with efficient utilization of the resources. The expected solution needs to have the following capabilities:
- OT Booking, PAC, OT utilization, equipment assignment and TAT record
- Doctors will book OT & equipment utilization (RFID may be used), log OT notes, In/Out time, patient status via a PC/Tab
- Voice to Text integration with existing HMIS, Hinai ICT Health.
- The solution should integrate with the Billing system as well.
- The solution should have a Web & App based interface.
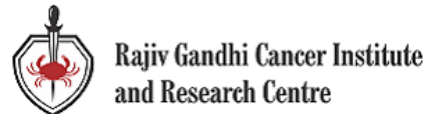
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