SecureSound: Real-Time AI based Selective Physiology Purging Image Processing Software for Ultrasound Video Output

Applications

SecureSound is an enabling technology that blurs out, in real time, the desired part of the ultrasound imaging. One of its core applications is complete automation of the conformance procedures of the PC-PNDT Act in India. As per PC-PNDT Act, 1994, pre-conception or pre-natal sex determination is not legal because misuse of advanced imaging technology for sex determination leads to sex-selective abortions. SecureSound offers a complete solution to automate the compliance to provisions of the Act easily. It helps generate automatic formatted reports for submission to government authorities and helps record the regular use of the ultrasound machine, reducing heavy paper work for compliance. So you can focus on using your Ultrasound assets to generate revenue while we take care of the paper work related to compliance and submission.

Inventor

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Categories of this invention

▶ Life Sciences (Instrumentation, Therapeutics)
▶ Computer Science and IT (Artificial Intelligence)
▶ Medical devices (Therapeutic - Medical Devices, Diagnostics)

Intellectual Property

Pending Applications

1. Method and System for Non Obstetric Medical Imaging. Abhishek Biswas (Inventor+ Assignee), Kaustav Banerjee.
Application number: 201711037465

2. Pattern Recognition by Convolutional Neural Networks. Abhishek Biswas (Inventor+ Assignee), Kaustav Banerjee.
Application number: 201831008797

3. Novel Algorithms for Feature Detection and Hiding from Ultrasound Images. (Abhishek Biswas, Neil Davey, Sonya Davey)
PCT Application number: PCT/US2014/013215
India Application number: 3598/CHENP/2015

Problem Addressed

Easy and automated compliance to PC-PNDT regulations
PCPNDT certification is mandatory for acquisition of any USG machine in India.

SecureSound solution brings in automation of the following:
— Mandatory submission of documents to local PC-PNDT body every 4 weeks
— Mandatory maintenance of USG procedure data and patient data for 2 years
— Lock on mobility (portability) of USG machines through mandatory location registration
Real-Time AI based Foetal Sex Selective Physiology Censoring Image Processing Software (SecureSound) is an effective solution for above challenges in the USG industry.

All Original equipment manufacturers, Pre-conception and Pre Natal Diagnostic Centres, Implementing agencies, and medical professionals are prospective target groups

Technology

SecureSound is an end-to-end Cloud based solution addressing the needs of all stake holders of the ultrasonography process in India. We leverage AI integrated Ultrasound Machines to ensure safe usage through seamless digital reporting and pre-emptive intervention in case of attempt to misuse. Our end goal is to deploy AI, Cloud and Automation to increase accessibility to ultrasound, the safest and cheapest radio-imaging modality and save the girl child too!

Green box represents that images have low chances for genitals to be seen

Artificial Intelligence Based image processing technology which can be integrated into ultrasound machines.

▶ Real-Time censoring of foetal physiologies rendering ultrasound machines incapable of use for pre-natal sex determination.
▶ Neither the doctor or patient is able to know gender of foetus
▶ For all other cases there is no interference and system stays dormant

AI based Automation

Four Tier Real-Time Cloud based AI Security System

Real time Purging
Real time - preventing operators from knowing pre-natal gender of Foetus at source

Account Authenticated Usage
All machines mapped to organization from point of purchase and doctors for using device to ensure transparency and accountability
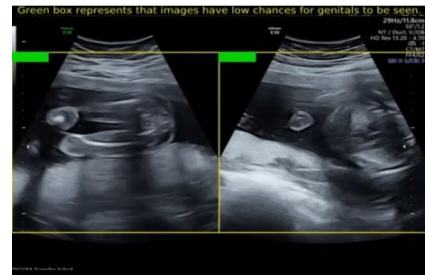
Activity Alert
Automated Ultrasound Usage detection and notifications

Integrated PC-PNDT Dashboards
▶ Geo-Locations of USG Machines integrated into one singular user friendly dashboard
▶ All PC-PNDT due diligence handled through smart-forms (Machines Registration, Doctors Affiliations, Session Related forms)
▶ Activity monitoring with Machine ID, Session, Geo-Location and notification (email, SMS, Call)
▶ Multiple Dashboard Views for seamless digital integration
▶ Real Time purging of sex-Selective Physiologies in Ultrasound

Reach Us

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Advantages

Automation with focus on pre-emptive prevention and real-time reporting

▶ All documentation collected directly from Ultrasound Machine through Smart Forms
▶ Automated AI based prevention and reporting of USG 's detailed use at source
▶ Geo-location and Cloud Based monitoring of machines in the field
▶ All information at your fingertip through Integrated Dashboards
▶ Data driven audit trails with real-time information and alerts