Augmented Surgery

When surgery, AI and AR unite!

GitHub

PLAN

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8. Project Realization Strategy
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The Problem

World Health Organization

The world health organization improve that every year there is 43 million medical errors which kill 400 000 people

Our Solution

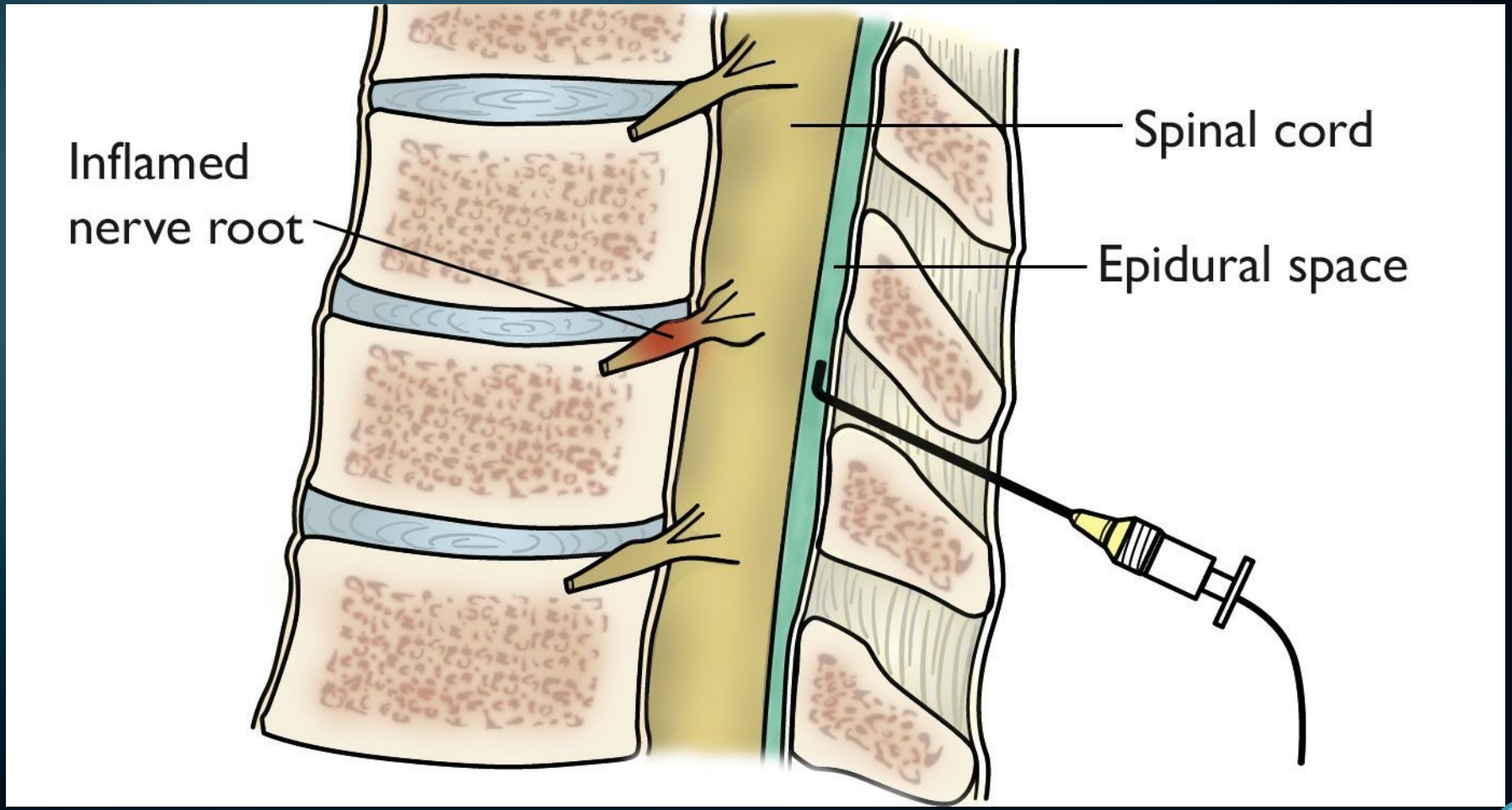
Augmented Surgery

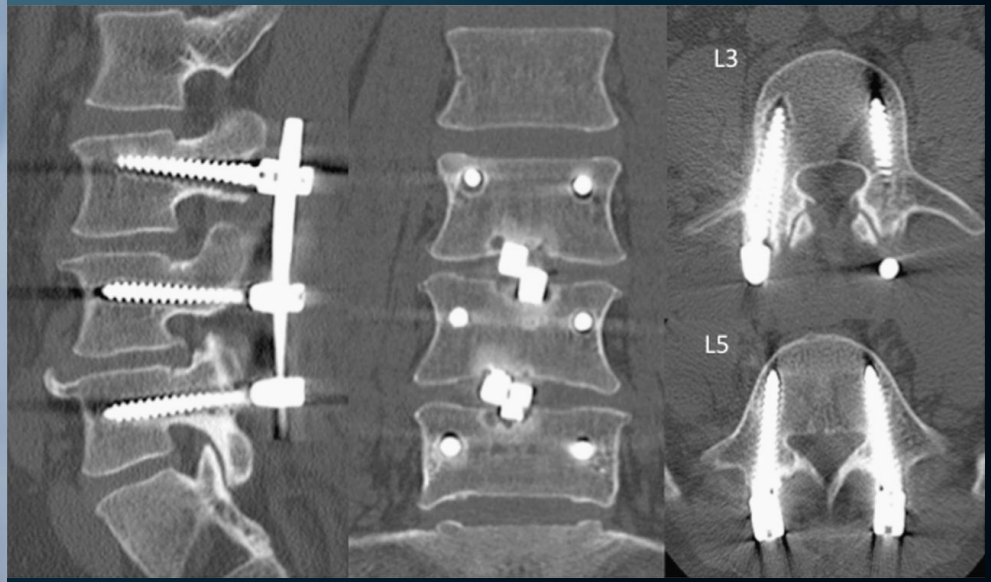
Real-time AI & AR-assisted Surgery

Augmented Reality Surgery is a real-time intraoperative AI to power a robust surgical toolkit, including surgical assistance in the Operating Room and surgeon feedback and analytics.

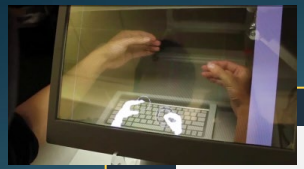
Example: Spinal Cord Surgery

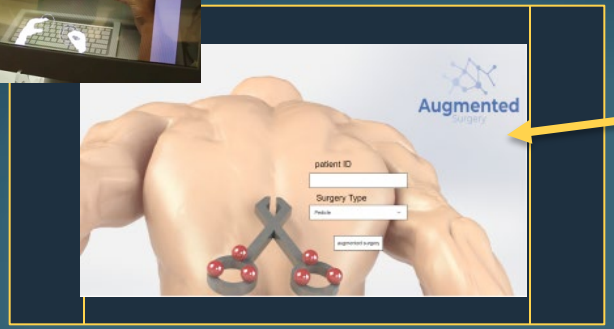
Preemptive CT Scan


Inflamed
nerve root
Spinal cord
Epidural space


L3
L5

CT Real-time Scanner
(O-arm)





The Prototype Platform

https://www.justinmind.com/usernote/tests/73847986/73849238/73849240/index.html?fbclid=IwAR2iGvJlDxS6P-HlKElAs2Z9oIAZg3C_K56CZ4RFQEr7CbuFwd-718CQLYs#/screens/d12245cc-1680-458d-89dd-4f0d7fb22724

Overhead light

V120: Trio
Optical tracking
system: Stereo
camera

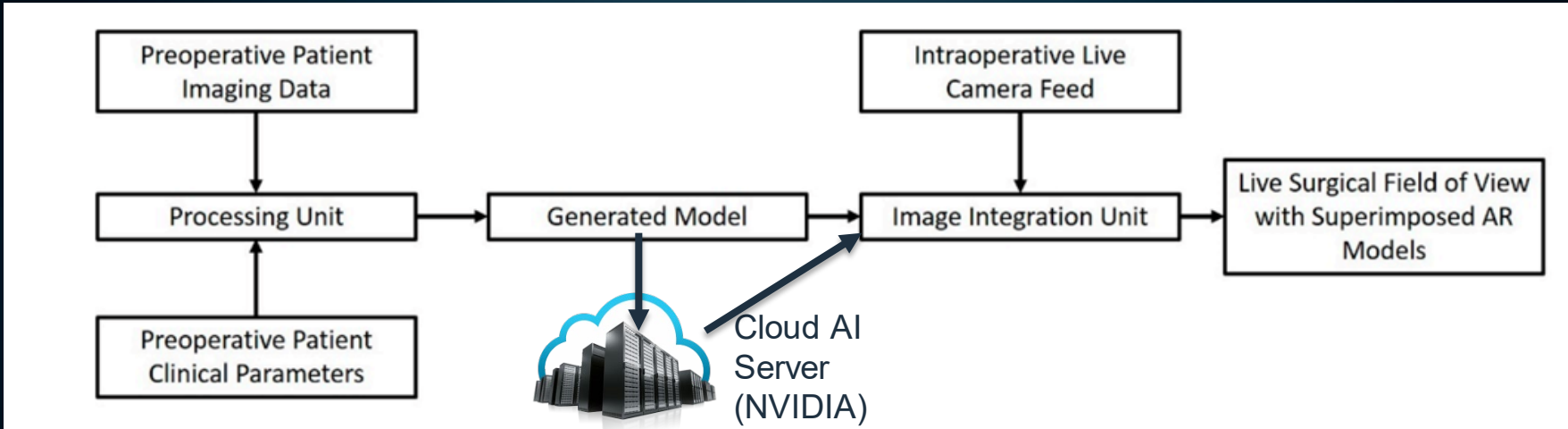
Projector Screen +
Processing Unit

AR Optical See-
through Holographic
Display

Stand

Cloud AI
Server
(NVIDIA)

AIoT Architecture

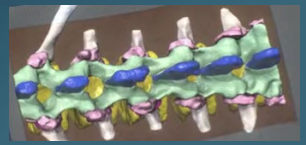


1- Creating a virtual 3D image of the patient's anatomy (ROI)
2- Image analysis, processing and anatomy segmentation
3- Diagnostic, preoperative planning, surgical simulation
4- Surgical navigation assistance

Features

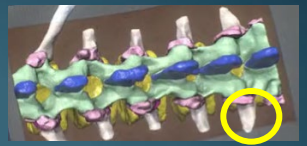
Autonomous Anatomy Segmentation

CNN segmentation of patient anatomy based on intraoperative 3D imaging.



Augmented Reality Guidance

3D trajectory and targeting are superimposed on surgical instruments in real time



Automatic Intraoperative Surgical Plan

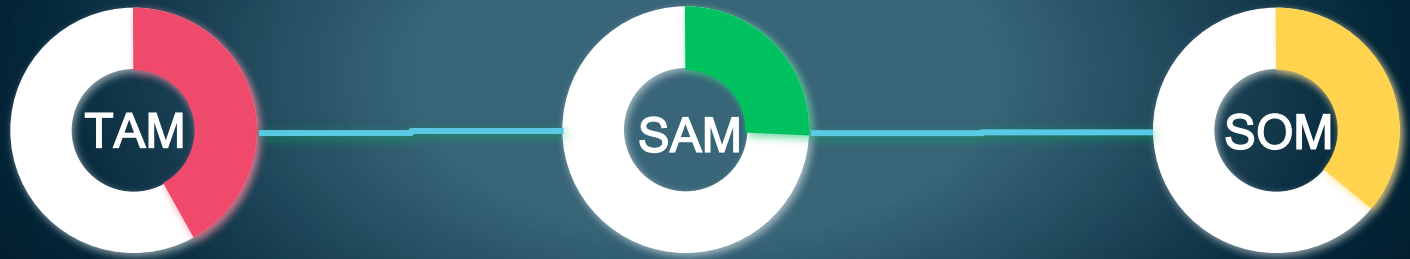
Suggests a surgical plan that eliminates time spent manually planning tasks and choosing tools

PLAN			
T1	Screw	Diameter (mm)	Length (mm)
	Right	5.5	40
T2	Left	6.2	50

Extra Features

- AI that tells surgeons to avoid areas near blood vessels
- Shows how thousands of previous sucessful surgeons traversed the anatomy and where they intervened.
- Another programme calculates the tissue's resilience and suggests alternatives if necessary

Market size



The global general surgery devices market size (2021)

Presence in the Medical Disposables in Tunisia (2022)

Per year market obtainable revenue in 2021

Inbound Marketing Strategy

Financing

01 Investors

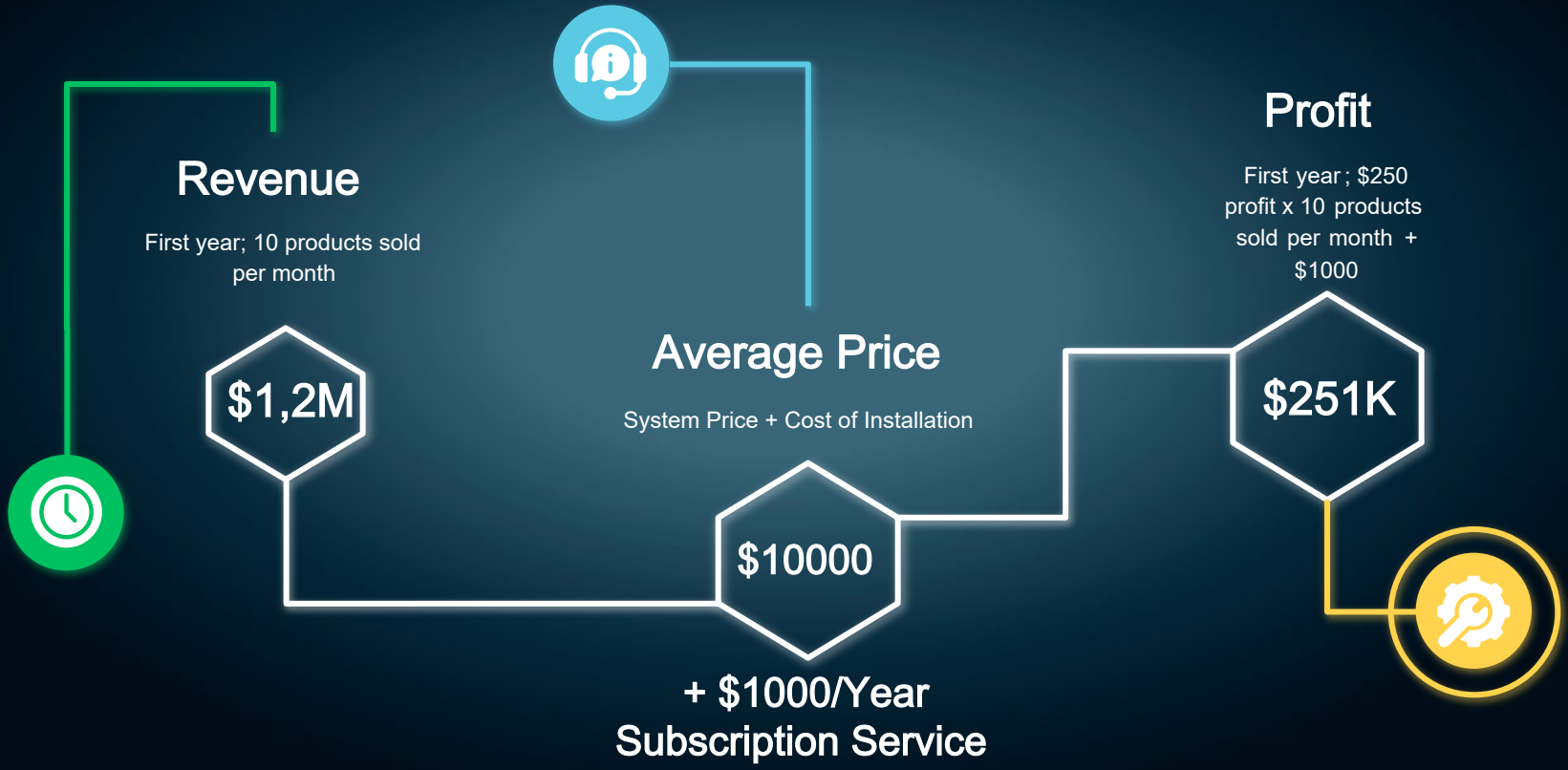
02 Incubators

03 Accelerators

04 Business Angels

Project Realization Strategy

Business Model



Business Model Canvas

The Team

Elyes Khechine

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Reach out to us for more!

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