Project Title: A Gesture Based Tool for Sterile Browsing of Radiology Images

Project Design Phase-I - Solution Fit

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Define CS, fit into CC

1. CUSTOMER SEGMENT(S) — CS

Who is your customer?
i.e. working parents of 0-5 y.o. kids

Our customers are medical professionals like Doctors, Nurses, Lab Technicians who wants optimized manipulation of the radiology images of the patients while performing surgeries.

6. CUSTOMER CONSTRAINTS — CC

What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.

The tool may perform badly in poor lightings. The system is costly to setup as it requires expensive cameras and other supporting devices.

5. AVAILABLE SOLUTIONS — AS

Which solutions are available to the customers when they face the problem
or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking

"Gestix," a vision-based hand gesture capture and system that interprets in real-time the user's gestures for navigation and manipulation of images in an EMR database is available in the market. The system is fast in making accurate predictions and it is easy to use. The drawback is that it can predict gestures only at a distance up to 5 meters from the camera.

Explore AS, differentiate

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS — J&P

Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides.

A robust system that helps in predicting the gestures and performs sterile browsing of radiology images should be developed using deep learning.

9. PROBLEM ROOT CAUSE — RC

What is the real reason that this problem exists?
What is the back story behind the need to do this job?
i.e. customers have to do it because of the change in regulations.

While performing surgeries, the use of computer keyboards and mice by doctors and nurses in intensive care units (ICUs) is a common method for spreading infections. Even though voice control also provides sterility, the noise level in the operating room (OR) deems it problematic.

7. BEHAVIOUR — BE

What does your customer do to address the problem and get the job done?
i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)

Directly related: Find the right platforms to install the developed model to measure the efficiency of the developed product in terms of usability, security, robustness and other factors.
Indirectly related: Customers spend their free time on researching about the usage and working of the system.

Focus on J&P, tap into BE, understand RC

Identify strong TR & EM

TR

3. TRIGGERS

What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.

Accurate predictions made by the system and value feedbacks got from the fellow surgeons make everyone buy the product.

4. EMOTIONS: BEFORE / AFTER

EM

How do customers feel when they face a problem or a job and afterwards?
i.e. lost, insecure > confident, in control - use it in your communication strategy & design.

Perplexed about the working of the system Confidence level increases by seeing the working the system

10. YOUR SOLUTION

SL

If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality.
If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.

In this project Convolution Neural Network is used. First the model is trained pre trained on the images of different hand gestures, such as a showing numbers with fingers as 1,2,3,4. This model uses the integrated webcam to capture the video frame. The image of the gesture captured in the video frame is compared with the Pretrained model and the gesture is identified. If the gesture predicts is 1 then images is blurred;2, image is resized;3,image is rotated etc.

8. CHANNELS of BEHAVIOUR

CH

ONLINE

What kind of actions do customers take online? Extract online channels from #7

The webpage developed can be deployed on cloud to be accessed by the users. The images browsed can also be uploaded on the cloud for later use.

OFFLINE

What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.

The developed model can be installed on the local system and the customer can use it offline.

Identify strong TR & EM