

Technical Advance: Touch-Sensitive 3D Surface				Ranking			
Specific Capabilities	Domain/Activity	Customer	Application	# Financial Viability	# Technical Feasibility	# Desire/Acceptance	Final Rank
1 Touching a surface in order to turn into some kind of signal for an action The application needs to be on a 3D surface 2 It gets more inaccurate with longer distances The application needs some kind of power source as well as mobility/immobility based on the type of usage	Discrete controls	Home owners or home/apartment builders	Touch sensitive walls that can do different features like change to different wallpaper features/moving wallpaper features (even digitally draw to create your own wallpaper)	1 High price in installing and in materials	1 Requires advanced technology that we might not be able to regulate yet	2 Could be desired in the future, but it is more so an idea for luxury	4
		Computers or tablet owners with extended keyboards	Drawing board that doubles as a keyboard and other accessories that can connect to the computer	4 Reasonable price range; can be in between the price of high end mechanical keyboards and low end price of tablets	2 Very manageable and can be made with today's technology	5 Artists would want this, so it is particular to a certain group of customers, who might just end up using what they already have with multiple devices rather than a combined one. Gamers might also want this	11
		Home owners or home/apartment builders	Light fixture switches that is a slider imbedded into the wall instead of a switch that sticks out	5 Higher price than normal switches but is reasonable	5 Very manageable and can be made with today's technology	4 Desired in more luxury contexts because of the configuration and installation	14
		Artists or designers	Use as a large digital canvas to paint paintings that can all be stored into one location	3 Just because of the size of the "canvas," it is higher priced, but it could be the cost of laptops	3 Can be made with today's technology, but it might be bulky	3 Desired by artists only, which means a smaller group of people want this	9
		Medical centers or stay at home medical situations	Medical controls panels, machines, and screens have no buttons and just touch-sensitive features in order to eliminate potential germs in the physical buttons	2 Expensive due to medical centers having special machinery	4 Can be easily made with today's technology	1 Only desired in professional medical environments	7
6	Remote controlling	Construction workers or personal construction	Control panels for moving around a crane remotely to avoid dangers of actually being inside of the crane	3 Higher price for implementing at construction sites	3 Can be easily made with today's technology	3 Might not be desired, since it might be difficult to get used to	9
7		Any person with a TV or smart TV	Remote controls have touch-sensitive features and a light up screen instead of buttons. You can switch to different presets and customize the layout of the "buttons" as well as color	4 Low price for smaller size and easy controls	4 Can be easily made with today's technology for combining multitouch screens with remote controllers	4 Desired by people who like not having buttons on things. For example, people might like a swiping feature more than a button feature to go to home screen	12
8		Virtual reality video gamers	Controller for FPS games where it is in the shape of a gun that has touch features to show UI in game and act like a real gun (reloading can be like swiping on the controller's magazine)	2 High price for the specific customization and for the advanced tech	2 Difficult to make but is reasonably within today's technology	1 Not desired too much, since it is most likely specific to a small genre of FPS games. People who do desire it would be people who like it a lot though	5
9		Any person with a smart phone that can play sound and in some situations connect to bluetooth	Control sounds and haptics on earphones, headphones, or earbuds with touch-sensitive surfaces	5 Low price for it being a tweak on an existing product	5 Very easy to make and some things do exist with this feature	5 Is desired by people who use ear buds more so than headphone users	15
10		Home owners or home/apartment builders	Walls being a surface that is touch-sensitive where the walls double as a screen that "follows" you around	1 High price for there to be so much machinery surrounding this idea	1 Very difficult to make due to there being so much imbedded technology that is constantly following the user	2 Might not be desired today, but might be more so in the future	4
11	Safety and accessibility features	Any person with a "smart vehicle"	Pressure recognition where the intensity is measured for, say, speed on a car or vehicle	4 Will cost a reasonable amount	3 Will be difficult to figure out the sensitivity of the pressure	2 People might not desire this, since they might like having a physical pedal to feel how fast they are going instead of it being a flat surface that is pressure based	9
12		Home owners or home/apartment builders	Safety precaution that instantly cools the stovetop when it is hot and a hand touches it	2 Expensive due to needing to cool fast	2 Very difficult to find a way to cool fast and be efficient with power	5 People would desire this as long as the price reasonable	9
13		Home owners or home/apartment builders	Touch sensitive floors that show which room a person is in inside their house to change the lighting and temperature control based on preferences (if it gets hot out then maybe someone medically sensitive to hotness needs more cooling in a certain way immediately)	1 Very expensive to implement and have multiple interacting machinery	1 Very difficult to implement such a high tech environment into a personal space	1 People might not want this unless for luxury purposes	3
14		Any person with a PC or a tablet that can use a mouse	Ergonomically shaped mouse that fits the hand better than a normal mouse with its own specific controls on the touch-sensitive parts of the mouse that will help with wrist problems or shoulder problems	3 Expensive due to it having the label "ergonomic" and it being so different from other mice	4 Not difficult to make	4 People might want this sometimes but not most times	11
15		People who want to use it for its purpose or for accessibility	A small pad that acts as a touch-sensitive writing pad that you can write out one letter at a time for someone who can't move their arm or body except their fingers	5 Not expensive because of size	5 Can be easily made, since it is small and does not need a screen	3 People might not want this as much	13

Dataset Inferences: Airbnb Host and Guest Data				Ranking			
Specific Capabilities	Domain/Activity	Customer	Application	Financial Viability	Technical Feasibility	Desire/Acceptance	Final Rank
1 People travel and people let people stay in their homes, which then builds this dataset This dataset can be used and applied to many groups of communities, since there are aftereffects of having a higher influx of people moving in and out 2 Thinking about tracking physical locations of the crowd as well as the type of crowd it is	Advertisement	Airbnb app users and producers	Recommendations for Airbnb app users to see locations that will fit their own interests based on previous trips and other information gathered from third party resources	2 Reasonably inexpensive	3 Easy to make and is very reasonable	5 Desirable to make for both the producers and consumers	10
		Airbnb app users and producers as well as potential users	Show reviews on satisfaction with the app on other sites	1 Expensive to advertise own product on other sites	5 Very easy to make	4 Desirable if used correctly	10
		Airbnb app users and producers	App data configuration to change layout/structure of the app in order to show something the users would interact with more	3 Not expensive	2 Challenge in design feature, but easy to make	3 Desirable for consistent users	8
		Real estate agents and Airbnb producers	Real estate recommendations for agents to sell homes in certain areas that have more traffic (people who are selling their homes to consider if they want to sell or not and maybe think about doing airbnb)	5 Not expensive to make and gets money from real estate agent apps or community	1 Might require making another app or making connections to real estate companies/agents in order to sell the information	2 Desirable for real estate agents and producers to get money in their favor	8
		Airbnb users and producers	Selling information to other providers to have random advertisements pop up on other applications	4 Not expensive at all, gaining money	4 Very easy to make	1 Desirable for producers to get more users, but some people might get annoyed with an ad pop up	9

6	Effects on nearby areas	Airbnb users, home leasers, and nearby home owners	Use the data to sell information for setting up locations for Airbnb convenience, effectiveness, and higher sales for people who are putting their own homes on the platform	1 Not expensive	2 Easy to make and is very reasonable	5 Desirable for Airbnb producers	8
7		Airbnb users, home leasers and nearby market, and restaurant owners	Sell information to nearby popular markets (restaurants, home construction companies, decoration companies) that want to change their product to fit the people coming in to stay at the Airbnb locations	5 Not expensive, gaining money	5 Very easy to make, since it is just selling information	4 Desirable for the Airbnb producers, but users might not like their information getting sold	14
8		Airbnb users, nearby home owners, and the government	Government being able to improve living areas where there are more people coming in through Airbnb (alongside other information realistically)	4 Not expensive for Airbnb, but no direct profit really	1 Very easy to make, but the step outside of Airbnb where the government is making living better is expensive	2 Desirable for the general community and for travelers to be able to find comfortable places to travel to	7
9		Airbnb producers and competition hotels	Create competition through hotels moving in (Airbnb selling their information to those hotels vs keeping that information to themselves to keep their sales higher)	3 Not expensive, gaining money, but might have problems later with competition overriding their own production	3 Easy to make and just send information	1 Desirable for hotels, but not too much for Airbnb producers	7
10		Airbnb users, home leasers, and nearby home owners	Better changes can be made on streets, street lights, stop lights, and more in order to accommodate for higher traffic	2 Selling the information is not expensive, gaining money, but setting up those street light and such is expensive	4 Very easy to sell information to state, but the state will have to spend more money	3 Desirable for the general community	9
11	Traffic and general living	People using GPS for navigation nearby those Airbnb hotspots	Navigation algorithms showing prediction traffic to show where there is higher loads of traffic in general and where there could be potentially more traffic based on how many people live in a certain area	4 Not too expensive, will have indirect gain	5 Easy to make and implement in an app	5 Desirable to general people living in that area	14
12		Nearby home owners	Home owners knowing what kind or how many of people are visiting in their neighborhood through Airbnb on the app, which is represented in a more general format to avoid targeting (like general demeanor, being something that the guests are willing to share, or just showing the general height of people coming in)	5 Not too expensive, but no real gain	4 Easy to implement into the app, but will require some algorithm	1 Desirable only for the nearby homeowners. It might not be desired by the Airbnb users that are renting	10
13		Nearby home owners	Nearby homeowners knowing which areas generally have more Airbnb locations through a heat map, for example, to know which areas they can avoid or not, which is shown on the app or even on other navigation maps	2 Not very expensive, but still has expenses	5 Easy to implement into the app or into a navigational/map app	2 Desirable to nearby inhabitants or people passing through	9
14		People using GPS for navigation nearby those Airbnb hotspots	Having live high traffic locations available on the app in order to avoid those areas	Not expensive	2 Easy to make, but will require time and resources in order to support this feature on the Airbnb app	4 Desirable for Airbnb users to navigate more efficiently and for Airbnb producers to maybe see the data to other companies	6
15		People using GPS for navigation nearby those Airbnb hotspots	A new navigation/map app that collects major to all renting platforms that show how traffic is through calculating how many people are staying in those different locations	1 Reasonably expensive	1 Easy to make, but will require time and resources in order to support this idea on a new app	3 Desirable, but not as much as having it as a feature rather than a separate app	5

Platform Capability: Smartphone with LIDAR

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Specific Capabilities	Domain/Activity	Customer	Application	Financial Viability	Technical Feasibility	Desire/Acceptance	Final Rank	
1	The ability to scan 3D objects with a laser from a camera or perceptor	Face and body scanning or recognition	AR/VR developers	Seeing the surroundings in order to track human features to use for better human service design (like face recognition or human body movement limitations)	4 Somewhat expensive	4 Could be very feasible as long as you can turn the tracking into numbers and be able to use that for service design	5 Mostly desirable in a general context and probably wanted by developers	13
2	The laser scanning is mainly used for scanning and downloading real life objects to make 3D digital meshes		Anyone with a LIDAR scanner, like an iPhone	Scanning your own body for getting your own demographics through a default app like the measuring tape on an iPhone	5 Not very expensive	5 Very realistically can be made as long as the LIDAR can be used in mid-distance scenarios	3 Desired by shoppers, but might not really matter that much to people who go in person shopping or people who don't really care for measuring the body	13
3	It can be applied to Augmented Reality, like in Snapchat's AR system with face and body recognition to see if there is a face/body or not		Anyone can use it	Smart glasses that let you customize yourself (like an avatar) that shows up on other people's smart glasses; for example you can change your hair to another color or give yourself a fancy hat	1 Very expensive to create and manufacture	1 Very difficult to make due to the body and face tracking not being developed enough yet	4 Desired by people in general for self customization (like choosing what clothes to wear)	6
4			Criminologists/police and judges/court	A program in criminology that scans videos to see the body language behind people who are going to, say, rob a bank	3 Somewhat expensive to create the program and be accurate	3 Probably won't be too accurate yet, but if developed further, then it will be more so	1 Desired by government and criminologists, but not really in any other context	7
5			Any designer who wants to make an ergonomic product	A base platform that is for designers to create things that is highly ergonomic from seeing the motion and limitations of a human body's joints and muscles	2 Probably somewhat expensive (like an adobe platform kind of idea)	2 Can be made in simple terms, but will take time and effort to actually develop into a smaller system that will make impactful suggestions on designs	2 Desired by designers and users who want ergonomic environments	6
6		Environment as a base for extended things	Map or navigational app developers and users	An app on an iPhone (Apple, Google, etc.) that scans the surroundings to store 3D models of the real world in order to have a 3D map of the world rather than only a 2D or fake 3D map for a more realistic experience	4 Somewhat expensive to create an accurate program to scan and use that mesh and compile different kinds of meshes	3 Hard to find a way to compile the different meshes; maybe use some kind of 3D version of 2D object finding and similarity recognition	3 Not generally desired, but still desired by developers and beginning stages of data collection for a larger project	10
7			Consumers	A platform (smart glasses, implants, pass-through screens) where the scanned surroundings can be used as a base for advertisement, news, or entertainment	2 Reasonably expensive	4 Will be difficult to make advertisements and news look integrated into the system in a human-friendly way, but basic forms are feasible	4 Desired by producers in order to have another platform for advertisements	10
8			Anyone that wants to see the fit of an object that isn't nearby or too heavy	An app or platform that uses this feature where it can scan an area to see if something will fit into that location or not	5 Not very expensive	5 Easy to do, but still finicky at this stage	5 Desired by general population, but will probably be more used at first with tech savvy users	16

9		Anyone with touch-sensitive features imbedded into their home and a full body LIDAR scanner	Having touch-sensitive furniture/floors/walls that interacts with LIDAR in order to try on an outfit through mixed reality (like projections or through smart goggles/glasses)	1 Expensive to have the whole setup	1 Not very easy to do because of the interaction in between the functions and machinery	1 Not too desired right now, but might be in the future; maybe desired in luxury contexts	3
10		Anyone who wants to create or play music without the actual instrument	Play an invisible instrument based on laser scanning of hand and arm movement that can be configured to have different movements mean different functions for preferences and accessibility settings (like moving your feet around will act as moving your virtual bow and play sound on a violin)	3 Probably expensive to create the software and algorithm readings	2 Not too easy to do, since the body won't have a reference point (like a physical violin) in order to show what movements mean what; also switching around the settings to have different movements mean other things will be very difficult	2 Desired by musicians, especially for accessibility purposes that prevented disabled musicians to play before	7
11	Safety precautions and features	People who want to use 3D navigation	Navigation app that shows the layout of inside and outside of buildings to represent directions efficiently, like in shopping or safety in crossing roads	3 Not too expensive to run, but will be expensive to build and accommodate for the diversity of traffic	2 Somewhat difficult to make, since it is the same approach as autodrive vehicles and being able to predict/read a diverse set of environments (like unkempt streets and broken street lights)	3 Desired in the future most likely, but might be desired for current AR users	8
12		Anyone with a surface injury and medical centers	Medical feature on a new EMT device or an app on the phone to scan and show the status of a shallow surface injury	5 Expensive to identify injuries correctly	1 Difficult to make accurate, but will be easy to make in the first steps	2 Desired by people who get injured easily (like anemic patients who fall a lot) or by EMT/medical centers to diffuse concentration of people with minor injuries coming into urgent care	8
13		People who are visually impaired and people with low light environments	An app that finds things in the dark as an accessibility feature or if there is no good enough light source	1 Not too expensive	3 Might be difficult to accurately recognize objects, but with development will become easier	4 Desired by visually impaired people as well as people who are consistently in low light environments	8
14		Anyone with vehicles	Check through implemented features in a car or bike to see your vehicle can fit through or ride on a certain spot to save your vehicle from getting potentially damaged	2 Probably not too expensive/just algorithms	5 Easy to make; similar idea to current sensors on vehicles that show when something is too close, but is expanded into trying to find a way that the vehicle can possibly move and should move	5 Desired by general drivers and vehicle users	12
15		Anyone who wants to track their health	Show on an app your health record, like sleeping patters or movement patterns, to recommend certain activities or a certain diet to improve state of living	4 Somewhat expensive to track so many things all the time	4 Somewhat difficult to make due to its nature being so diverse	1 Not too desired	9