PhoneClone

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ABSTRACT

Have you ever borrowed a car? Maybe it was a friend's vehicle or a rental. There is often a moment or period of adjustment to familiarize yourself with the other vehicle. The basic steering wheel is where it should be, brakes and gas pedal are good. You feel confident until you make that first turn and mistake the windshield wipers for the turn signal. If this doesn't sound familiar then a more common similarity is found when a friend asks you to look up directions on their phone. Finding the app on their device might take a minute depending on how familiar you are with that model or figuring out how they prioritized apps on their devices.

Nothing is more intuitive or instinctive than using your own phone. With PhoneClone your phone use is now fluidly extended into your vehicle through screen and audio using your Android or Apple device. Your phone is remotely accessed when you enter your vehicle. Use your favorite driving and music apps with the touch of the vehicle screen or launch apps with your voice using Siri or Google while driving. Access all apps while you are in the park. Kill some time watching your favorite YouTube channel while you are parked and waiting.

THE PROBLEM

In the average base model of any vehicle new buyers don't realize that all the things they have grown accustomed and expect to find in a vehicle are actually extra, like power windows, or Bluetooth systems. Every car manufacturer on the market has been offering their own tech packages or systems over the years. Not all are as intuitive

as others and in some cases you pay a lot for something you don't end up using or enjoy. The same pre-installed apps fall out of fashion (like Pandora), navigation systems need expensive updates, and the satellite radio subscriptions don't appeal to everyone.

 If you have ever been inside a friends car, an Uber, a Lyft, or maybe even in your own vehicle your phone is always within reach, for looking up directions or a playlist. Dashboards and windshields are mounted with 3M mounting tape or suction cupped phone mounts to keep your handy hand held device in sight. Regardless of what kind of navigation, satellite radio, or pre-installed app the car comes with people have their go to apps they know, use, and love.

The problem is that most manufacturers have been coming up with one new system after another and have expensive updates or 3rd party subscription features. All this extra tech feels a bit excessive when some drivers/users simply want to just use their phone; the 8-11 hundred dollar device we have grown to depend on and already pay a monthly subscription for.
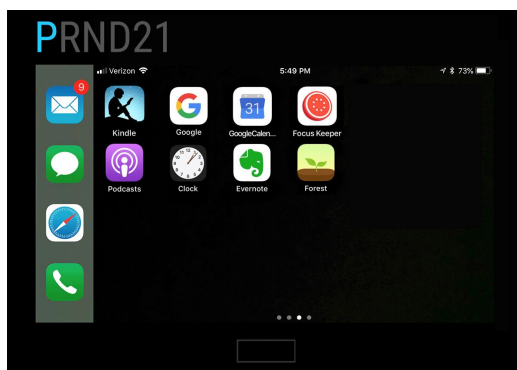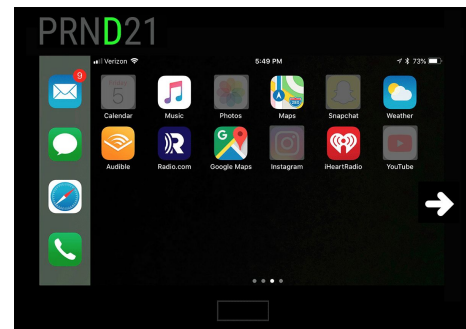

Click here to enter into interface!

USER EXPERIENCE

   PhoneClone is as intuitive as it gets in regards ease of navigating and general use in a vehicle screen. The remote usage of your phone gives you access to object we are all very familiar with, our cell phone. All

apps and settings are rendered exactly where you left them or how you organized them on the various pages on your phone screen in horizontal view.

On iPhones the App Dock is now rendered on the left while in horizontal view on the car screen. This places the frequent or favorite apps closer to the driver. Closing the distance between the driver and App Dock increases the ease and speed of use.

To begin simply turn-on the vehicle with the Start Button in the vehicle. The system will power on in Accessory mode or with the vehicle completely turned on. Touch the screen just as you would your phone screen. Swipe left or right to scroll through

the pages of apps on your device. Touch an app like Google Maps to launch it, use it just as you always have. A physical home button is built into the form of the to "go back" or exit an application.

Not all features are accessible while in various modes like "D" drive mode. While the car is set in Drive all social apps are rendered non- accessible to the user. Limited apps for navigation, music, calls, and texts will remain available.

Voice is/can be used for launching apps and sending messages and making calls. Text based items will be read by device out loud if the user wishes to hear them.

While the car is in "P" Parked mode, full access to all apps is granted. Check your email, watch a movie, or check out the latest viral video while you sit in the comfort of your car.

PRIOR ART

The following applications are examples of similar technology being used in the automotive industry.

1. **Subaru STARLINK**

   Starlink offers wireless pairing of smartphones to the built in vehicle screen. The screen grants access to multimedia functions, navigation and "starlink roadside assistance. Media featured on the larger vehicle

   screen access the users contacts the user's preferred apps. The target audience is the urban adult population. Users can access smartphone apps for news, navigation, music, podcasts, and more through the available STARLINK interface. The Starlink interface is a paid service but offers free subscription for the first few months. However, once the free trial period is over, the user needs to pay for the subscription for continued service and accessibility of the Starlink features.

A key feature of PhoneClone described in this report is that it runs on a phone service you already pay for and can utilize the accounts and subscriptions you already have to get use and access to various apps and internet connection.

2. Apple CarPlay

Apple CarPlay is multimedia connectivity tool for iphone users. CarPlay connects the user's iPhone to the vehicle's console screen. From there the driver can navigate, make calls, text, and listen to music. The key distinguishing feature is the voice command capability. The user can control the multimedia panel using the voice commands. The cost of this interface is $350.

PhoneClone offers similar features. We go a step further and incorporate the entire phone display and have modified the location of the Docked apps to be on the left closer to the driver.

3. Android Auto

Android Auto is a distraction-free interface for drivers to connect their android smartphones to their vehicle's screen. It has all the features of Apple CarPlay described

above, although the cost to the owner is $700.

PhoneClone is offered at a lower price rate and is also compatible with Android devices. Device screens are wirelessly rendered onto your car screen.

PROJECT SCHEDULE

The Project Schedule for this project is prepared by using smartsheet.com. In the schedule we considered six days working with work duration of 4 hrs/day from August 27th Sept to 10th Oct.The product development cycle is break down in project Conceptuation, Initiation, Planning, Execution , Testing and Closure.

	Task Name	Duration	Start	Finish	Predecessors	Status
1	☐ Project Conceptuation	5d	09/27/18	10/02/18		Complete
2	Reading Case Study on Dashboard	1d	09/27/18	09/27/18		Complete
3	Brainstorming Automotive design problems	2d	09/28/18	09/29/18	2	Complete
4	Concept Selection	1d	10/01/18	10/01/18	3	Complete
5	Gathering Information	1d	10/02/18	10/02/18	4	Complete
6	☐ Initiation	2d	10/02/18	10/03/18		Complete
7	Practicing Code from Getting Started with P5 j	1d	10/02/18	10/02/18	4	Complete
8	Visit to Lexus dealer	1d	10/03/18	10/03/18	5	Complete
9	☐ Planning	2d	10/02/18	10/03/18		Complete
10	Information Architecture	1d	10/02/18	10/02/18	4	Complete
11	Template Design for Dashboard	1d	10/03/18	10/03/18	10	Complete
12	☐ Execution	7d	10/03/18	10/10/18		Complete
13	Start Writing Report	1d	10/03/18	10/03/18	10	Complete
14	Wireframing	1d	10/03/18	10/03/18	10	Complete
15	Create template in Photoshop	1d	10/04/18	10/04/18	11, 14	Complete
16	Creating Assets in Illustration	1d	10/04/18	10/04/18	11, 14	Complete
17	Algorithm	1d	10/05/18	10/05/18	14, 15, 16, 7	Complete
18	Prototype	1d	10/06/18	10/06/18	17	Complete
19	☐ Testing	3d	10/08/18	10/10/18		Complete
20	Self Testing	1d	10/08/18	10/08/18	18	Complete
21	External Testing	1d	10/09/18	10/09/18	20	Complete
22	Proofread document	1d	10/10/18	10/10/18	21	Complete
23	☐ Closure	1d	10/10/18	10/10/18		Complete
24	Finish Report Compilation	1d	10/10/18	10/10/18		Complete
25	Presentation	0	10/10/18	10/10/18		Complete
26						

Pseudo Code

1. Create imagery for desired play space 1200 x 850 px

2. Create variables for images

3. Ensure all imagery is sized for optimal load time 300ppi

4. Preload all imagery

5. Create functions(); for cycling through imagery

6. Create "if" statements to run one function after another in the draw

7. Create global variable "pages"

8. Assign "page" numbers to functions();

9. In the setup declare value of "pages" to run the cycle

10. Import Images and to images folder

11. Create key and mouse interaction Rect and Ellipse

12. Create KEY boolean

13. Create reset key 'c' values for welcome screens

14. Translate "drag motion" from processing to P5js(optional)

References:

1. Apple CarPlay: https://www.apple.com/ios/carplay/

2. Android Auto: https://www.android.com/auto/

3. Subaru StarLink: https://www.subaru.com/engineering/starlink.html