Digital Scent

Digital Scent, One of "WoW" features for China Market

Feature Description:
- Digital scents can be used, in combination with other elements of the vehicle (lighting, audio, HMI graphics, and climate) to create immersive experiences for curated moods like relaxing, exciting, alert, or familiar
- Digital scent be customized per personal preference
- Digital scent be used for health through aromatherapy application
- Ford can create a brand unique scent

Key WOW Moment:
Its been a hectic stressful day. After arriving home from work, Jun enjoys 10 minutes in his car to unwind and rejuvenate, to be in the best spirits for his family. The vehicle takes him to a place in nature, showing forest scenes in the IVI, playing birds chirping, dimming the lighting, creating a breeze with the HVAC, and outputting the scent of nature. Jun breaths in deeply, smiles, and rejuvenates himself in his personal retreat, created by Ford.
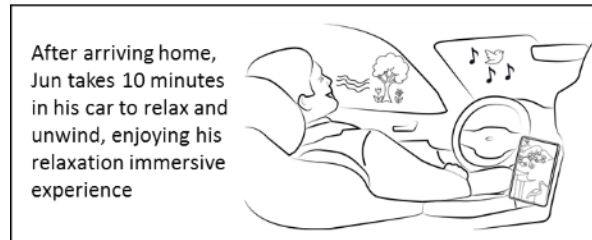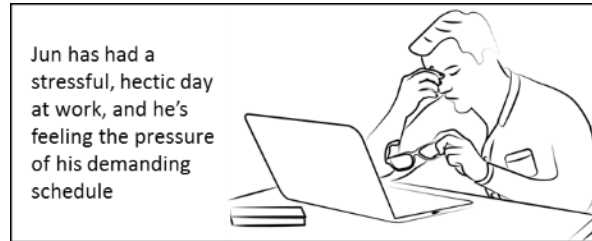
Use Case Examples and Customer Value:
- Curating immersive experiences
- Customization – high desire in China
- Branded scent
- Themes- seasons, holidays, etc
- Aromatherapy – health as an investment

Enterprise Value:
- First to market
- Digital scents can be purchased as aftermarket or subscription items
- Potential for addition of cultivated moods post purchase

WoW Moment / Key Experience Sketch

Jun has had a stressful, hectic day at work, and he's feeling the pressure of his demanding schedule

After arriving home, Jun takes 10 minutes in his car to relax and unwind, enjoying his relaxation immersive experience

After he's had some time to rejuvenate, he joins his family in good spirits. Its important to Jun to be in a good mood for his family when he arrives home.

Investment Assumption
- $ (TBD)

Key Enablers / Potential Partners:
- Partnership with digital scent company (i.e. ScentRealm)
- Synchronization of other in vehicle elements (audio, lighting, climate, IVI scenes

4 Cartridge with different scent

Each fragrance module contain 4 different scent, and integrated with HMI and APP control. Customer can chose the prefer scent through IVI or mobile APP.
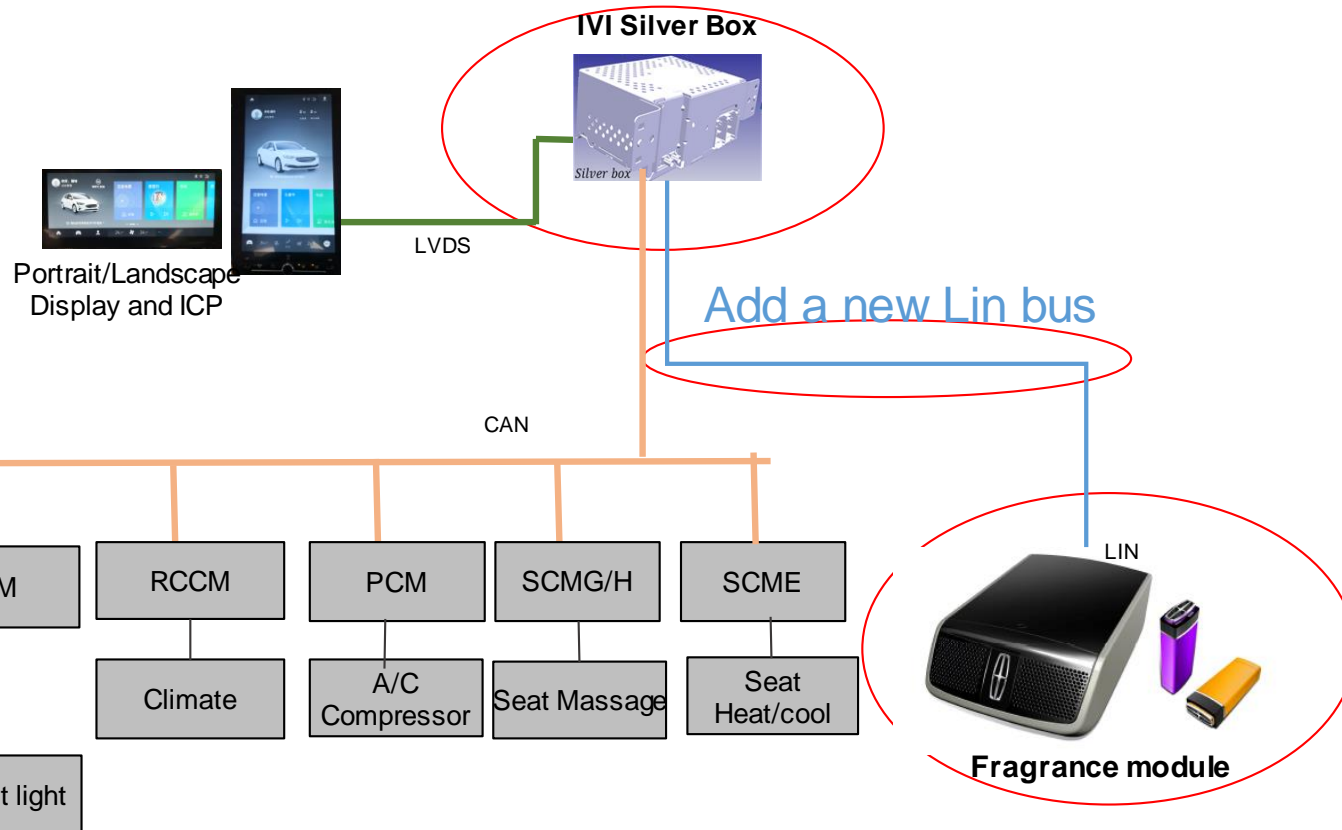
The Scent experience can be also buddle with lighting/ Audio ,Massage and Visual to consist different mood

- ▶ Developed by R&A Dearborn & PD Body Eng in Palo Alto; with supplier partners Inhalio (start-up) and Yanfeng

- ▶ **First prototype** Smart Fragrance module developed for Lincoln Navigator center console

- ▶ Product reviews completed:
  - ▶ K.Washington, J.Baumbick 11/2018 at GFL
  - ▶ D.Ferretti, G.Mullen, F.Fusco 1/2019 at PDC
  - ▶ B.Ford, J.Hackett, E.Ford 2/2019 at GFL
  - ▶ Lincoln Prgrm Mgmnt, Marketing, & PD 3/5/2019
  - ▶ Lincoln Dealer Council 3/5/2019
  - ▶ Team Edison 3/7/2019
  - ▶ J.Falotico 3/7/2019
  - ▶ Vehicle Personalization & Accessories 3/8/2019

System Architecture

IVI Software
changed

IVI Silver Box

Silver box

Portrait/Landscape
Display and ICP

LVDS

Add a new Lin bus

CAN

BCM	RCCM	PCM	SCMG/H	SCME

LIN

	Climate	A/C Compressor	Seat Massage	Seat Heat/cool

Ambient light

LIN

Fragrance module

new hardware,
and console problem

◆ The part in **red circle** is the change scope.

◆ IVI is a control center, it will control the fragrance module by Lin message

◆ IVI control the seat massage, ambient light by CAN message, but don't need to add new CAN messages. All these control is combined with fragrance module control to give our user immersive experience.

Ford
Go Further

Change Scope

Type	Components	Function Description	Comments
IVI Software (Low risk, if the fragrance module could be ready 2-3 months ahead of DCV)	MCU / BSP	Detect the new Lin device and hand the Lin message between IVI and new device	Supports from YFVE are necessary, to be aligned
	Framework software	Provide all the interface about the new device to APP	To be aligned with Baidu & YFVE
	Application software	1. Add the new device status page and Setting page 2. Save setting data to Lincoln profile. 3. Add a new APP for this feature , this APP will control other modules, such as ambient light, A/C, Massage, Audio.	Suppose in-house SW team to take responsibilities, supports from Baidu are necessary
IVI Hardware(Low risk)	EDS	LIN Connection, Power supplier	Aligned with EDS team
Digital scent module (Souring high risk)	N.A	N.A	PMT2 responsibility
Cloud software (middle risk)	t.b.d	t.b.d	Concept under discussing

Overview Feature's Functionalities

Function	Sub-function	Description	Priority
Specific scenarios	Rejuvenation	Help the user to rejuvenate by scent combined with ambient light , massage, audio,video There are three different scene: Still Water/spa/forest	phase1
	Awakening	Awakening the user by scent combined with ambient light , massage, audio, video	phase1
	Fresh Air Sanctuary	Ambient light, audio, video	phase1
Fragrance Module Control	Setting	Enable/disable fragrance select diffusion cycle	phase1
	Status Display	current scent, remaining scent life	phase1
	Warning	Cartridge authenticated or not	phase1
Voice Control	Voice Control	Enable/disable Fragrance select diffusion cycle Select a specific scenarios	Phase 1

Specific scenarios may have some changes in future, because the User experience research have not started, we don't know which kinds of mood we need to support.