

EVOLUTION MAP, FUTURE UNVEILED BY PAST PATENTS

Mijeong Song, Ph.D. TRIZ Master

VIP Center, GTC, Samsung Electronics, Suwon, South Korea / Mijeong.song@samsung.com

Duckjin Choi

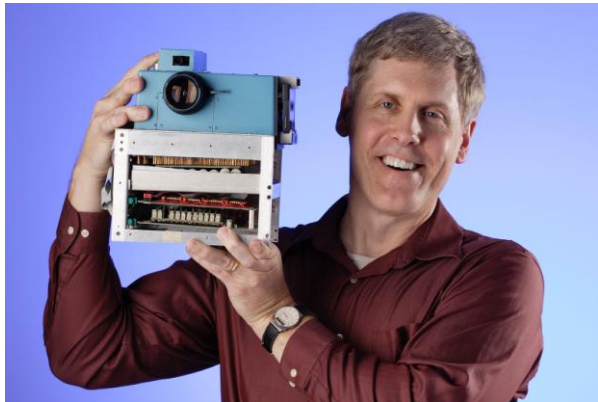
VIP Center, GTC, Samsung Electronics, Suwon, South Korea / duckjin.choi@samsung.com

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Future unveiled
by past patents

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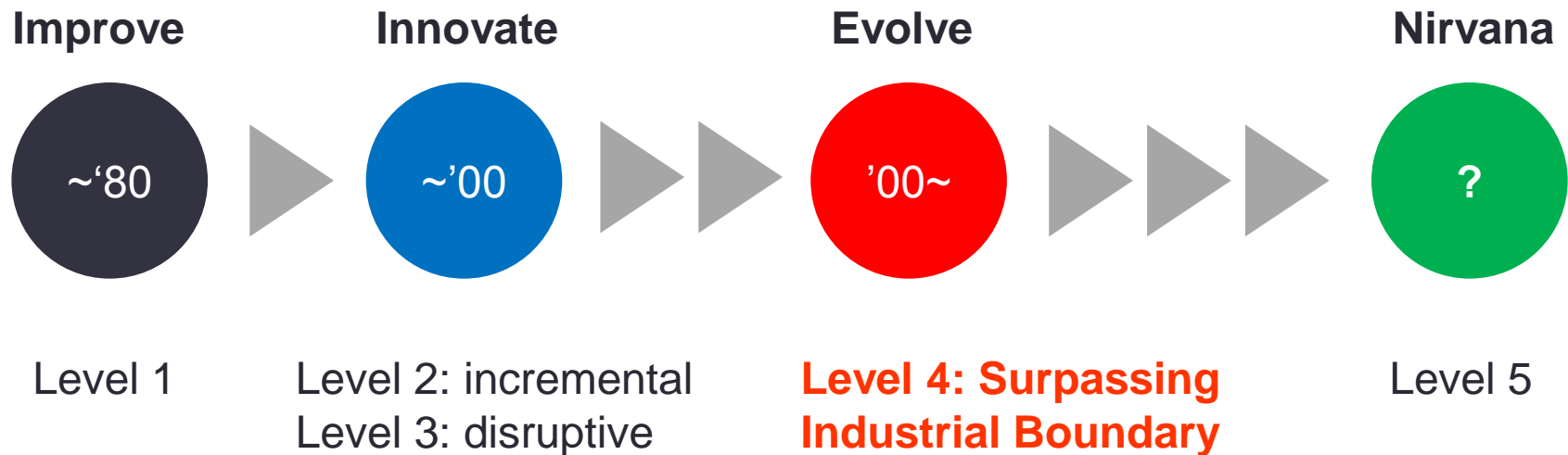
1. Motivation | Background



**Simple Question:
Why and Why not To Be?**

1. Motivation | Needs and Goal

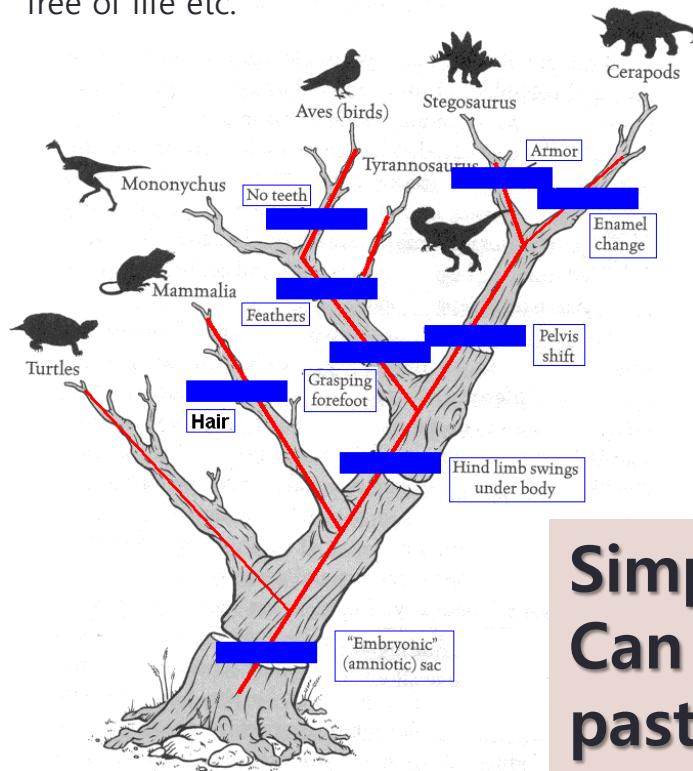
“ TO BE ...



1. Motivation | Needs and Goal

“ Origin

Genealogical tree
Phylogenetic tree
Phylogenetic evolution tree
Evolution tree
Tree of life etc.



“ Navigator

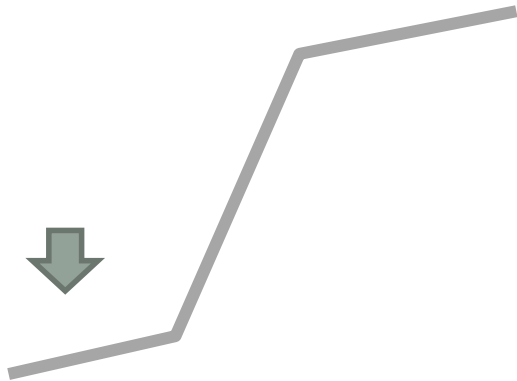


**Simple Question:
Can I have a frame to understand
past and predict future?**

2. Approach | Prior study

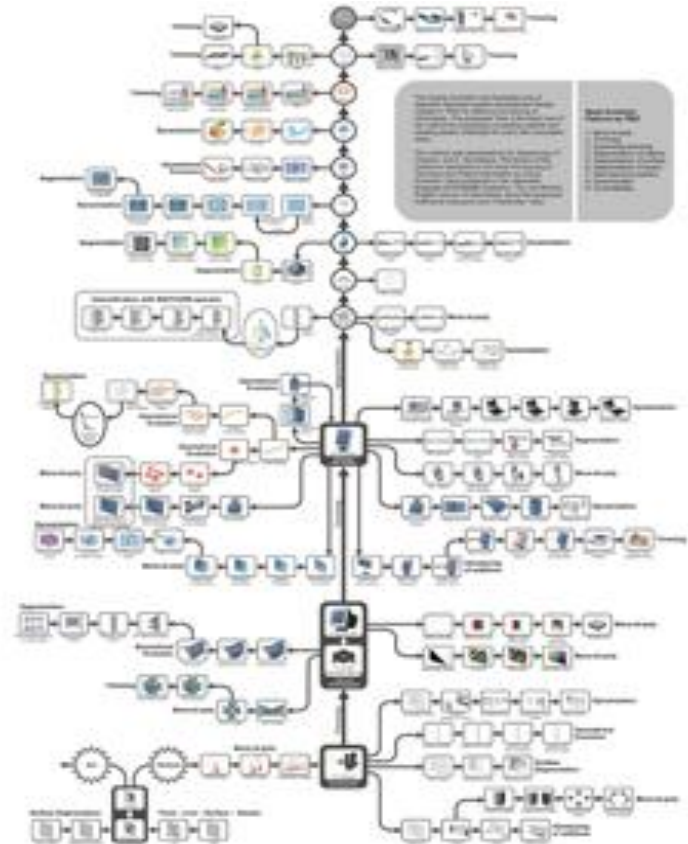
Evolution Theory

- Theory of Technical Systems Evolution (TRTS in Russian)
- “8+1 Laws of Technical Systems Evolution”.



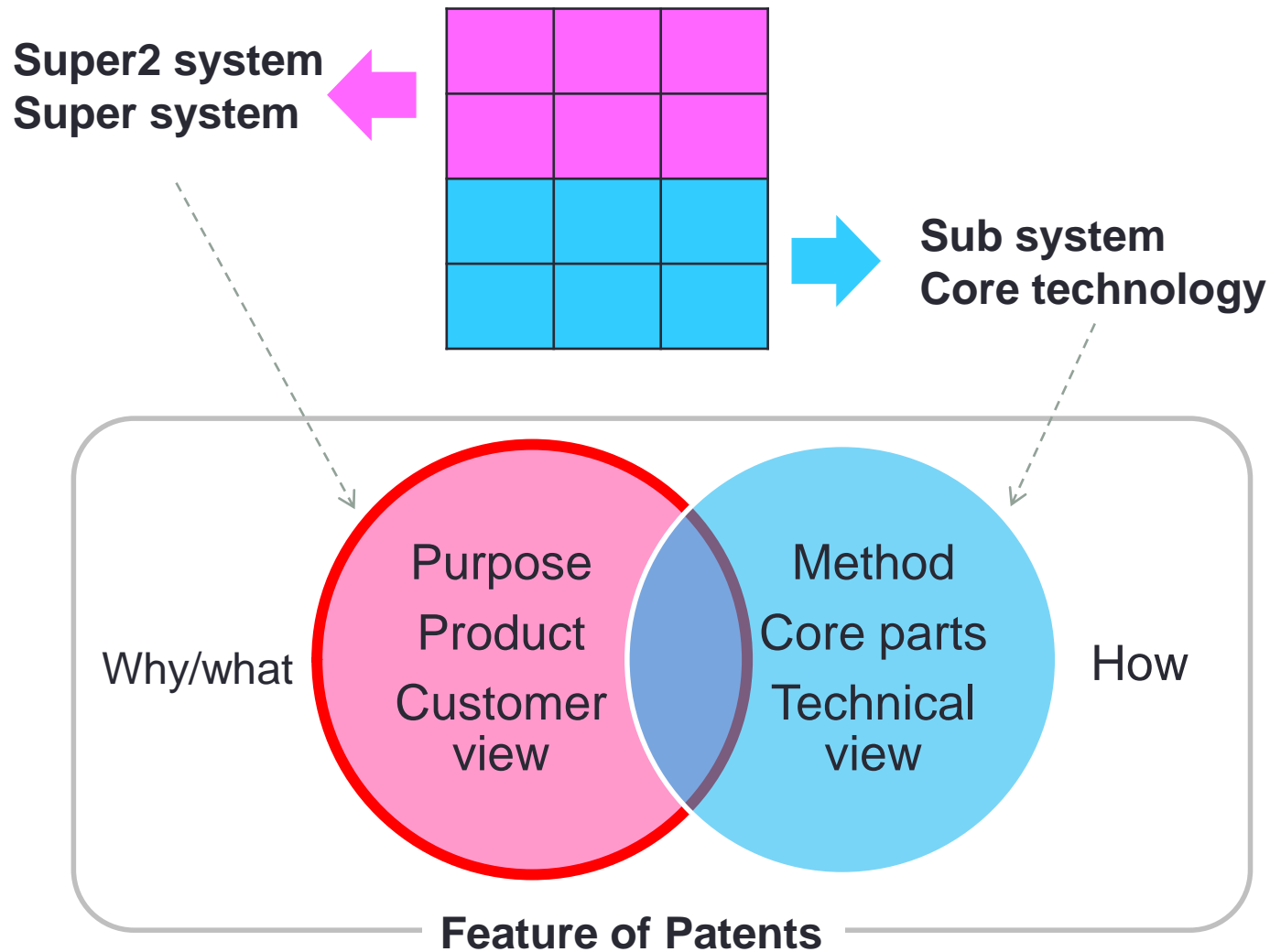
G. Altshuller “Creation as exact science” (1979)

Technical Evolution Tree

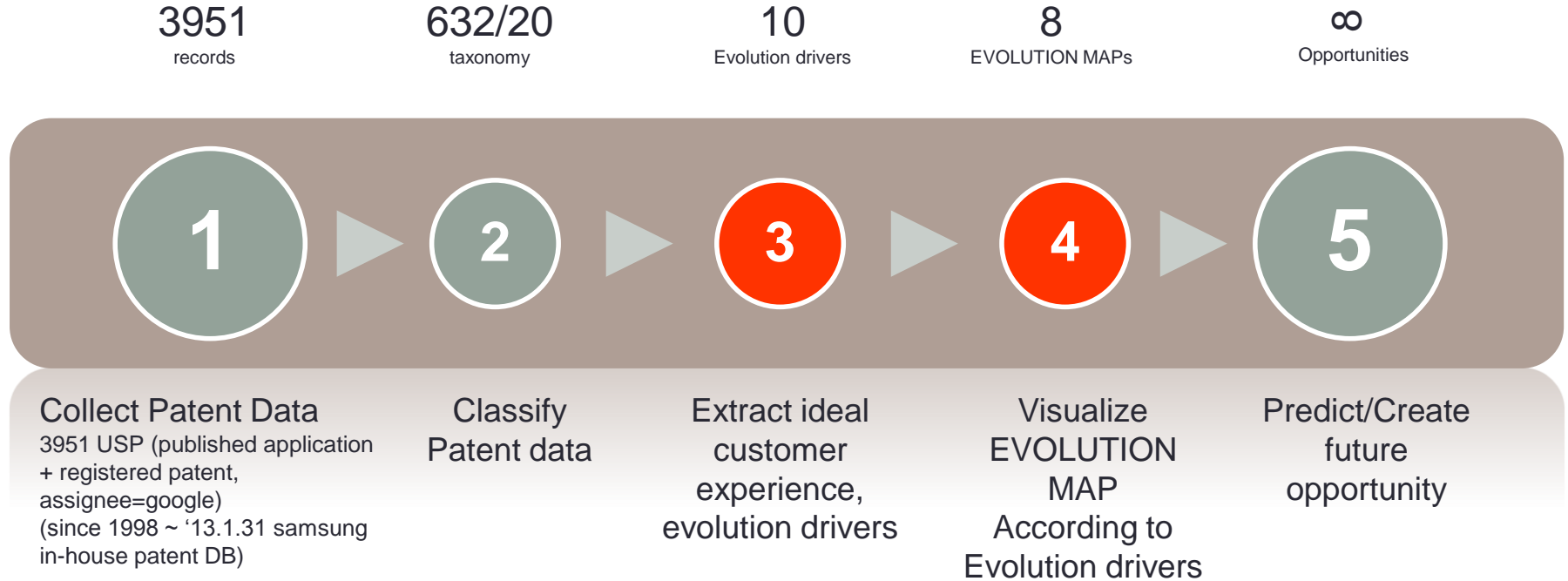


Chuksin, P., & Shpakovsky, N. (2006). Information analysis and presentation in forecasting. *TRIZ-journal*.

2. Approach | Patents for Evolution Prediction



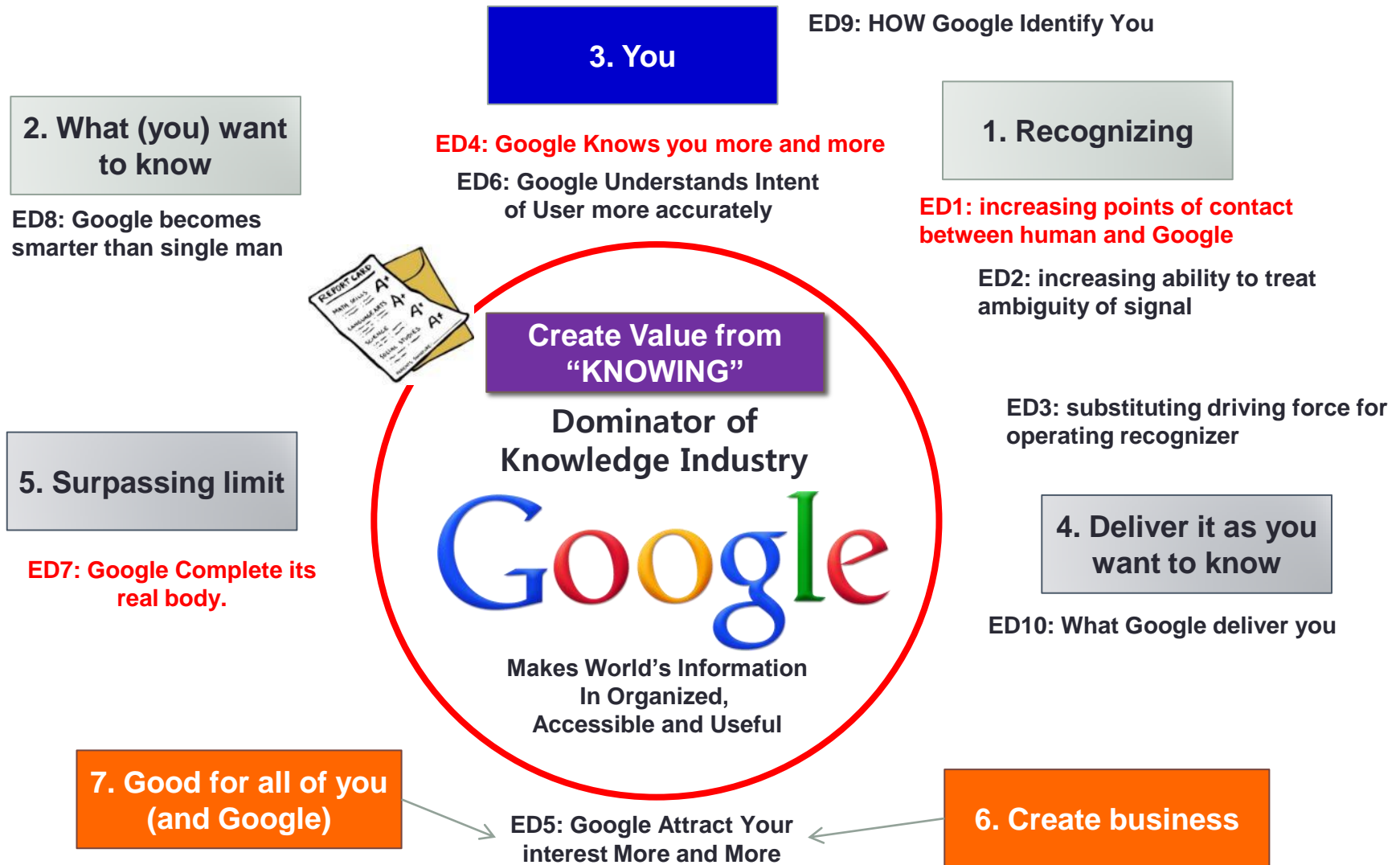
2. Approach | Evolution Mapping Process



3. Results and Discussion | case 1. Google

will be presented...

3. Results and Discussion | case 1. Google



3. Results and Discussion | case 1. Google



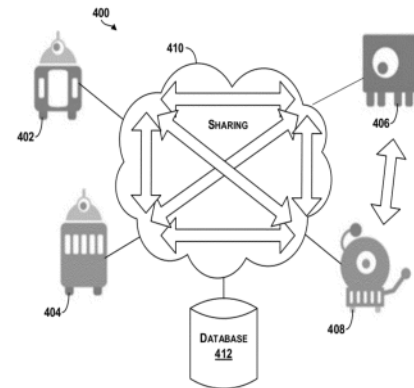
will be presented...

3. Results and Discussion | case 1. Google

• Evolution Prediction fits the real patents activity trend of Google

US8321364 Method and system for including robots into social networks

A



Robot makes chatting on the SNS with you 'human' friend to prepare birthday party of you.

FIGURE 4

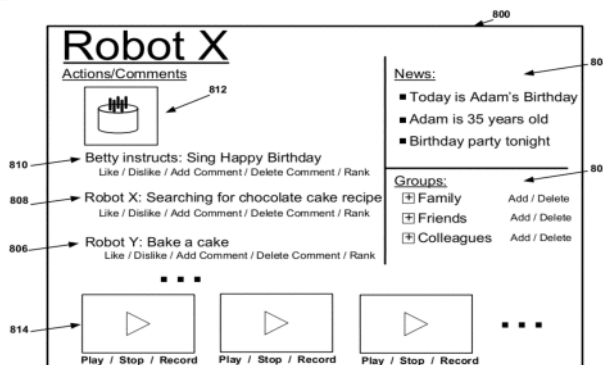


FIGURE 8

US8718861 Determining when to drive autonomously

B

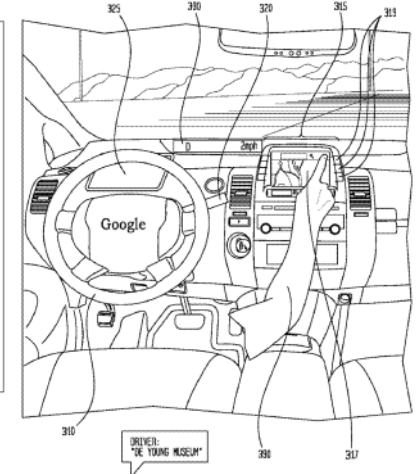
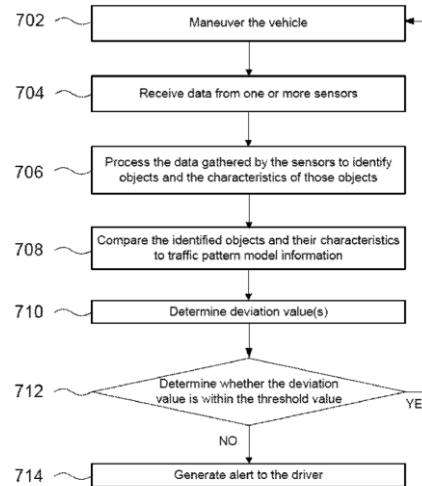


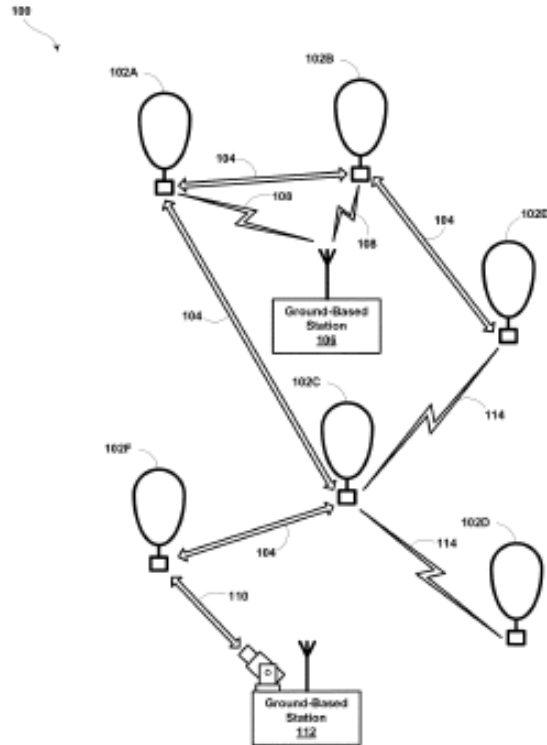
FIGURE 3

101

3. Results and Discussion | case 1. Google

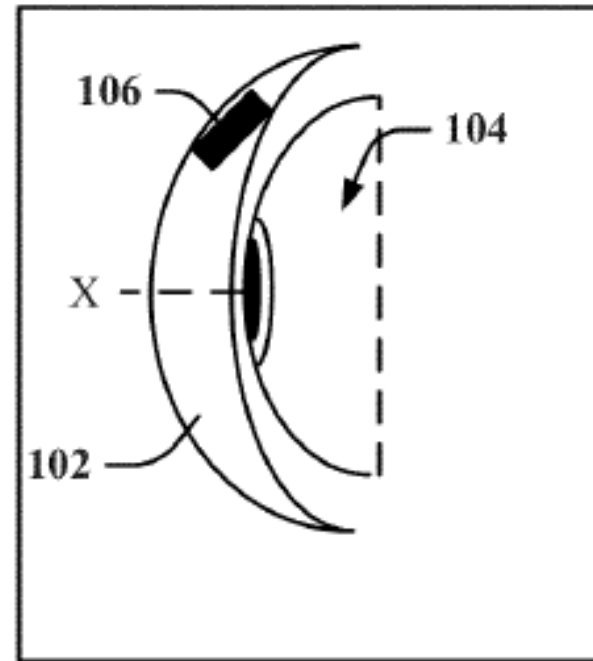
US20140099122A1 Using Predicted Movement to Maintain Optical-Communication Lock with Nearby Balloon

C



US20140085602A1 WEARABLE DEVICE

D



3. Results and Discussion | case 2. Industrial Robot

will be presented...

4. Closing

- Motivation of the work
 - understand and predict “species breaking evolution” of product
- Basic Approach
 - Classifying big patent collection to extract insight
 - **Visualizing** insight(**evolution drivers**) with past patent record
- Results obtained
 - Case 1. Google
 - Evolution Theme : “**KNOWING**”
 - Core Evolution Drivers: Increasing **point of contact** to ‘know you more’
 - Case 2. Industrial Robot
- Further Work
 - Linking strategic action of R&BD
 - Increasing efficiency of insight mining procedure by system