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The Adoption of VR Headsets In The United States

- **Technological Trend:** The adoption of virtual reality headsets in the United States
- **Socioeconomic Factor:** Age groups will be split into four categories; 16-24, 25-34, 35-44, 45+.
- **Geographical Scale:** United States

Motivation

I chose virtual reality (VR) technology as my technological advancement because I owned the first consumer orientated VR headset to release; Oculus Rift CV1 and since then I have been engaged in VR technology. Over the past 9 years VR technology has rapidly evolved while also becoming mainstream. This report will explore whether younger age groups are more likely to adopt VR compared to older groups and how these trends vary between States. This report will investigate the causation of trends through four socioeconomic factors; age group, gender, state income, state location.

Preliminary Information

Virtual Reality headsets were first introduced in 1968 known as The Sword of Damocles(V.R Society) but weren't consumer orientated till 2016 with the release of the first Oculus Rift. After the successful release in 2016 other companies released their own headset such as HTC Vive, Playstation VR. Since the original release headsets have become more ergonomic, better resolution, improved refresh rates, etc.

Adoption Trends & Raw Data

- Roughly 15% of Americans own a VR headset.
- VR headset ownership can be affected by external factors for example; income, urban vs rural, policies, etc. Reports show rural areas on average get 40mbps download.
- Ages 16-24: 34% This is the second highest demographic of vr headset owners
- Ages 25-34: 35% VR is mainly used for fitness and professional applications.
- Ages 35-44: 26% In this demographic VR is used as a family activity
- Ages 45+: 18% This demographic uses VR the least mainly due to familiarity of this technology
- New York, California, Texas have the highest demographic of VR users, this could be due to these areas being 'tech savvy'.

Visualization Plan: A 2D interactive map of the United States. Each state will display VR adoption trends through 4 age group demographics, state average income, gender, and state location. . Also there will be a ‘time slider’ to show the VR trend over a period of time. Python will be used for compiling and cleaning up the data.

(Milestone 2)

GitHub Project : <https://github.com/Jay-Kimani/VR-Data-Visualization>

Instructions to run visual map

- Install python 3.8+
- Download GitHub project folder
- Read the ‘ReadMe’ file
- Open the file folder in VScode
- In VScode terminal, run “pip install -r requirements.txt” (installs pandas and plotly)
- In VScode terminal, run “python VrMap.py” (opens the interactive map in your browser)

(If you want to manually install Pandas and Plotly)

- Terminal, run “pip install plotly” then run “pip install pandas”

Data analysis and preliminary research:

- Younger age groups, like 16-34 years, are the main adopters of VR, and the least interested are the older age groups (45+).
- Adoption is predominantly carried out in states with significant tech presence (California, Texas, New York).
- -Urban areas with higher median income correlate with higher VR adoption. For example, California has a high median income (\$80,000) and high urbanization (95%), which correlates with their high adaption to VR headsets. Meanwhile, Michigan has lower income and urbanization, which is equated to lower VR adoption.
- Gender Differences: Evidence shows that men are more likely to have VR headsets than women, with uses varying by gender (gaming vs. business applications).

Initial Visualization

- Using Python and data visualization libraries such as Plotly and Pandas, an interactive map is being designed where:
- Users can hover over each of the popular states to see the breakdown of VR adoption by age, gender, and income.
- A color gradient heatmap represents the percentage of VR adoption in each state.
- Due to limited data availability, only popular states with significant VR adoption trends have been included.

Next Steps

- Enhance the interactive features of the map.
- Evaluate how the visualization reflects socioeconomic influences.
- Create presentation

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