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# UBC Science Case Competition

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# What are the issues?

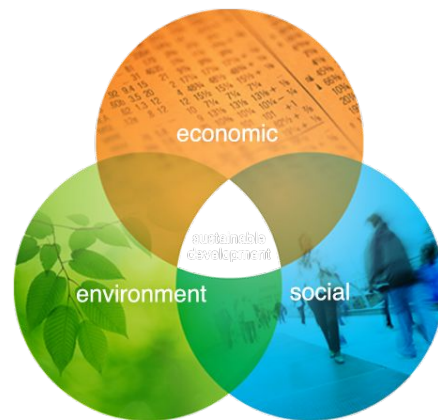
- **Decline** in level of natural conservation
- **Increasing** number of foreign visitors
  - Increased by around **4%** per year [2.1]
  - Foreign visitors may have different cultural background and belief about the environment
- Human activities:
  - **Littering**
  - Undergoing commercial development

**We Better Act Now !!!**

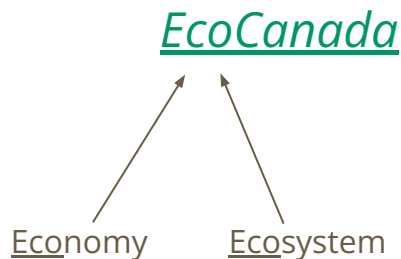


# What is our approach?

- Principle: must be **feasible** and **realistic**
- Have **balance** between economy and ecosystem
- Promote indigenous cultures



## Mobile App Development:



- **Education**-> associated with the environment
- **Live Stream & AR**-> an alternative way to experience the nature
- **Geofencing**-> visitor trends, predictive analyses with big data
- **Social Media Platform**-> society awareness
- **Funds**-> support environmental protection

# Education:

- Biological and Ecological **Knowledge**
  - Descriptions of the species
  - How we can protect the natural environment and biodiversity
- Canadian Law **Policy**
  - Foreign visitors may not know the Canadian law associated with the environment
- Local Indigenous **Culture**
  - To respect the indigenous lands and their cultures
- Knowledge **Quiz**
  - Allow visitors to strengthen their memory
  - Reward (coupon) will be given after quiz which can also promote commercial development in the area.



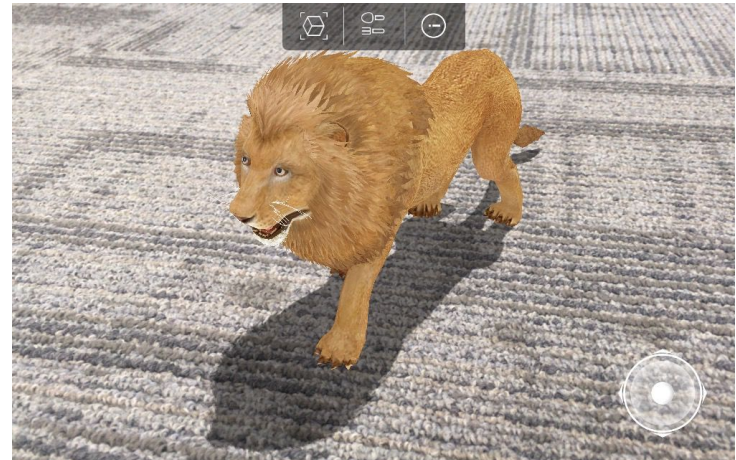
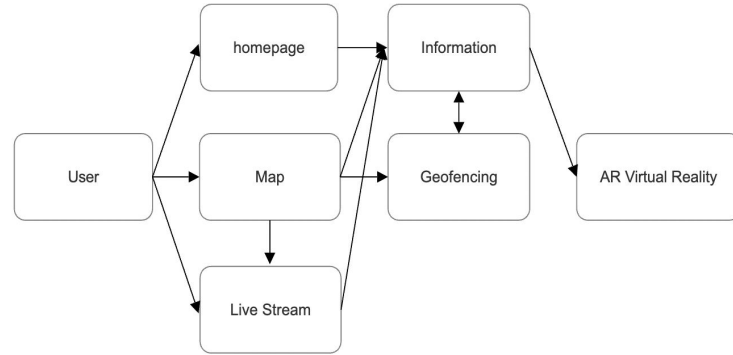
# Live Stream and AR:

- **Live Stream**

- Set cameras
- Zoom in from the map to watch **live stream**
- Help staff monitoring and managing
- **Decrease contact** in COVID-19 situation

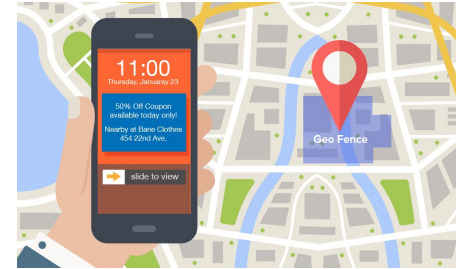
- **AR Virtual Reality**

- Project animation of selected animals to the camera
- **Interact** with the animation



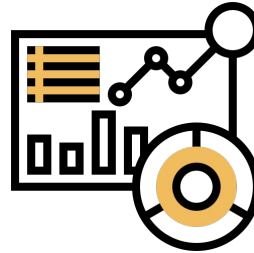
# Geofencing:

Implemented in the form of a location tracking app



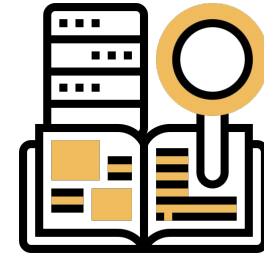
## Tourist's perspective:

- Can view the overcrowdedness of park areas and adjust their routes accordingly



## Park management personnel perspective:

- Understanding of visitor mobility and behavior allow for predictive analyses using big data [6.1]



## 2019 Study

- Acadia Visitor Study: A Mobile Tracking Application

# Social Media Platform:

- **A Discussion Section**

- **Updating** current information
- **Posting** photos
- Reduce amounts of visitors

Social media changed people's attitude and increased people's knowledge about environment of the Zayandeh-rood river in Iran [7.1].



- **An Environmental Friendly Activity**

- **Motivate visitors** to participate into this activity
- More than 25,000 posts about collecting trashes were made during the trashtag trend [7.2].



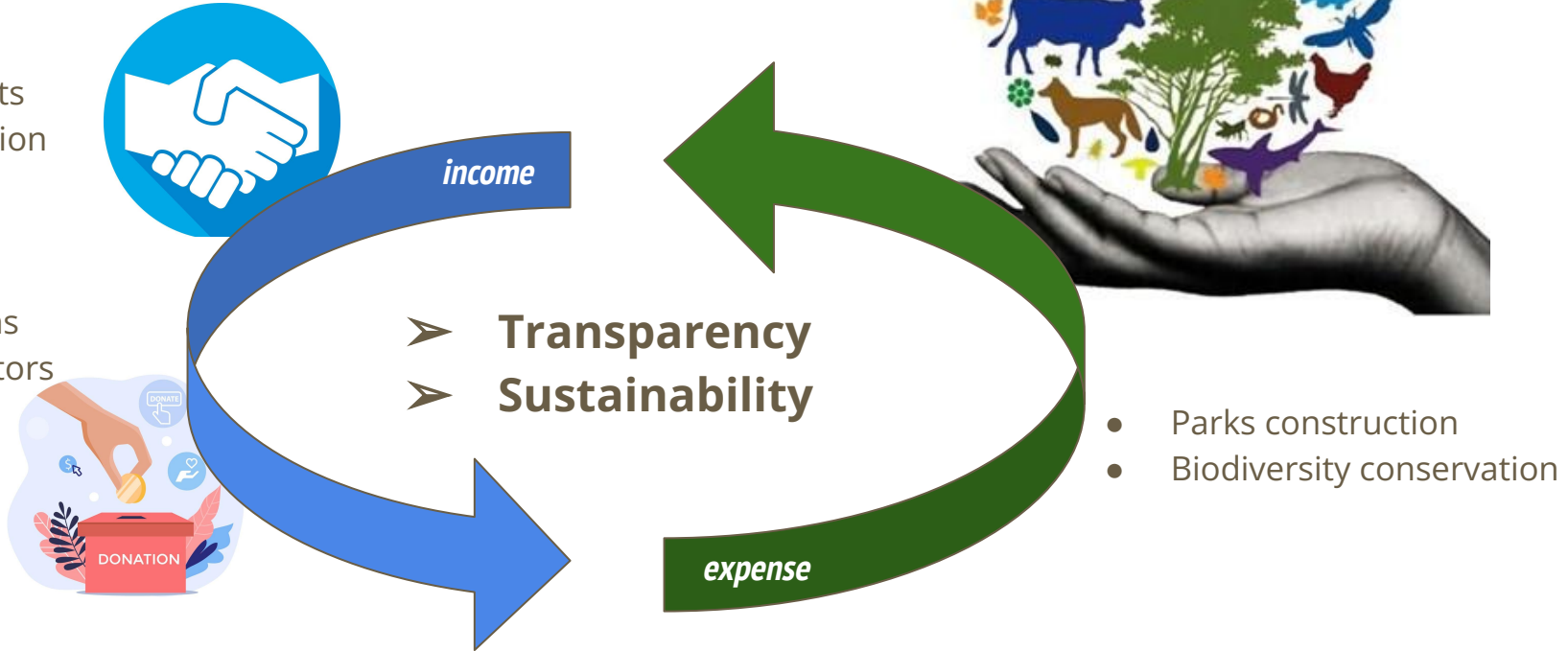
#trashtag

237,798 posts



# Funding:

- Merchants cooperation
- Donations from visitors





## Challenge and Conclusion:

- App development is difficult (implementation of AR and geofencing, device compatibility and performance)
- Privacy concern (the ownership of the data)
- Need promotion in the beginning stage

**But !!!!**

- Our solution is **feasible** and **realistic**!
- Our solution can maintain **balance** between economy and ecosystem!
- Our solution provide an **alternative method** for the people that try to **decrease contact in COVID-19 pendenmic**

# References:

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[5.1] Xu, F., & Chu, W. (2021). Sports dance movement assessment method using augment reality and mobile edge computing. *Mobile Information Systems*, 2021, 1-8. <https://doi.org/10.1155/2021/3534577>

[6.1] Jemison, J.A., Rivelli, J., McCauley, K.P., & Nunez, M.A. (2019). Development of a Visitor Tracking Phone App: To Gain a Better Understanding of Visitor Mobility and Behavior.

[7.1] Arbatani, T. R., Labafi, S., & Robati, M. R. (n.d.). *Effects of social media on the environmental protection* . Retrieved from [https://www.researchgate.net/publication/305175012\\_Effects\\_of\\_social\\_media\\_on\\_the\\_environmental\\_protection\\_behaviour\\_of\\_the\\_public\\_Case\\_study\\_Protecting\\_Zayandeh-rood\\_river\\_environment](https://www.researchgate.net/publication/305175012_Effects_of_social_media_on_the_environmental_protection_behaviour_of_the_public_Case_study_Protecting_Zayandeh-rood_river_environment)

[7.2] BBC. (2019, March 12). *#Trashtag: The Online Challenge Cleaning Places up*. BBC News. Retrieved from <https://www.bbc.com/news/world-47536861>

[8.1] OECD (2019). Biodiversity: Finance and the Economic and Business Case for Action (Organization for Economic Cooperation and Development).

**Thank You For Your Time! 🍁**  
**AND LET'S HAVE A 1-MINUTE DEMONSTRATION!**