KAMILIMU

Group Members and Roles

1. Joy Wambui Nyuguto - Project Manager
2. Rachael Kiai - Researcher
3. Cheryl Ouma - Programmer

Mentor's Name: Mr.Sidney

Project Name- TECH-BARABARANI

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Introduction

- In Kenya, over 3000 people die from road accidents every year. Most of them are in their prime (15-45)years.According to the 2021 National Transport and Safety Authority (NTSA) road safety status report, the number of road accidents in Kenya has risen at an alarming rate, from 3,707 in 2020 to 4,347 in mid-December 2021, the highest in five years, representing a 17.3 percent increase.This makes Road Accidents to be ranked the third-highest leading cause of deaths in Kenya after Malaria and HIV/AIDS.In relation to the Accident Cause Code Classification, the Kenya police report shows that 85.5% of the crashes

are attributed to poor driving behaviours,5.1% are due to vehicle defects, and 2.9%due to poor road infrastructure.
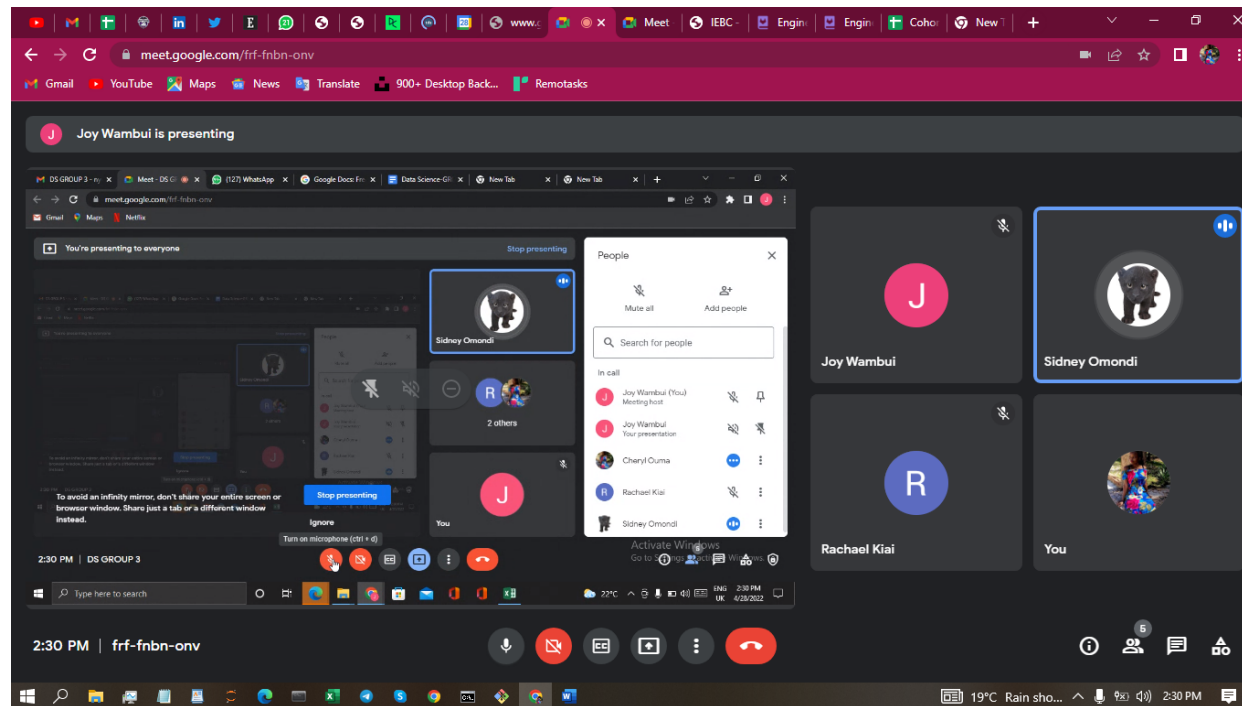
- More than 75% of road traffic casualties are economically productive young adults. Pedestrians and passengers are the most vulnerable; they account for 80% of the deaths.When people die through road accidents, they also die with their talents, skills, potentials, ideas, expertise and marvelous contributions.

- Current interventions are sporadic, uncoordinated, and ineffective . In the past, road fatalities have been attributed to poor road infrastructure. However, we note with concern that even after the government's heavy investments in state-of-the-art infrastructure, more lives are still getting lost on our roads. There is an increase in the number of untrained and inexperienced riders on the road, failure to wear protective and reflective gear, and dangerous overtaking. The current statistics of fatalities in road accidents stands at 1324 motorists,1186 pedestrians,463 passengers, and 289 drivers.

- Moreso,Currently, the road traffic offence data collected by National Transport and Safety Authority for instance speeding and drunk driving data is solely used for reporting and prosecution hence not adequately utilized in ensuring road safety.

- To address this gap Tech-Barabarani comes in.

1. Tech-Barabarani gathers data of all road accidents for the past five years, goes deep to the causes and the effects the accidents have on the country. We then come up with a prediction of the next possible occurrence of road accidents.

2. Tech-Barabarani will form patnerships with the government and NGO to set up measures that will prevents road accidents based on our prediction models

- Our algorithm-based system will make use of traffic offense data to predict the likelihood of a driver causing road accidents.

Description of Solution

- Currently, the road traffic offense data collected by National Transport and Safety Authority for instance speeding and drunk driving data is solely used for reporting and prosecution hence not adequately utilized in ensuring road safety. Effective utilization of these data can positively impact road safety management since authorities(target audience) can put in place mitigation mechanisms in order to prevent frequent road accidents.

- The algorithm-based system developed in this study makes use of historical accident data in Kenya data to predict the likelihood of a driver causing road accident.

- Our target groups are the government and road, traffic officers. Both the government and the traffic officers have tried to come up with ways of reducing road accidents but they have difficulties in reducing the numbers. With the algorithm-based system, the government and traffic officers can easily predict when and where an accident is likely to occur.
  - We are using predictive analysis for our project; we use regression (linear and logistic). Predictive analysis is the best fit because we are trying to predict the occurrence of road accidents. Regression is the best fit since we are using data that has variables.
  - The design process we used included; observation, research, ideation and implementation. We held meeting to brainstorm the ideas. Here is a screenshot

○ We used jupyter notebook, using python programming language to train and test the data,

Value proposition

● TechBarabarani provides insights on road accidents, how they occur, when and where they occur. We reduce road accidents hence reducing death rates in Kenya. We give insight to both the government and traffic officers on the occurrence of road accidents using the data that we collect and the system we build to predict road accidents.

Competition

- Our competitors are researchers and analysts who gather data on road accidents and give reports to both government and traffic officers on the trends of road accidents occurrence. They are our competitors because they also work with data and report like we do. They do data analysis and presentation as well. .

Competitive Advantage

- Our solution is unique in the sense that we do not just focus on data, we have built a system that uses the data we collect to predict future occurrences of road accidents in Kenya. Unlike other researchers and analysts who only focus on collecting, analyzing and presenting data, we have gone a step further and built a road accident prediction system to reduce the rate at which accidents occur.

Business Model

- To make TechBarabarani a success; we will have a Data Science Engineer, a web designer, a software engineer and an analyst working together as a team.
- We intend to partner with the government, traffic officers, researchers and analysts who will be helpful in giving insightful data on road accidents in Kenya.

Finance model

- Our system will generate revenue through sponsorship by institutions that share the same interest, which is road safety. We will also earn revenue through partnership with potential partners and also through ads on the site.. Our initiative will be sustainable by

being a unique initiative which helps reduce road accidents. It will make work easier for traffic officers and improve the economic state of the country.

- We will earn revenue through shares that will come from partnering with institutions that are interested in road safety. Government sponsorships and funds from angel investors.

Milestones so far

- We have collected and analyzed data. We have started building the system and we have a logo for the system.

Scaling Plans

- We plan to expand through partnership with institutions with similar interests. With our partners being the government and traffic officers, we plan to have all road users, especially drivers in Kenya as our future customers.
- In the next 1-5 years, we plan to have reduced road accidents in kenya by at least 30% and to boost the kenyan economy by at least 20%

Funding/Support Need

Chart Title
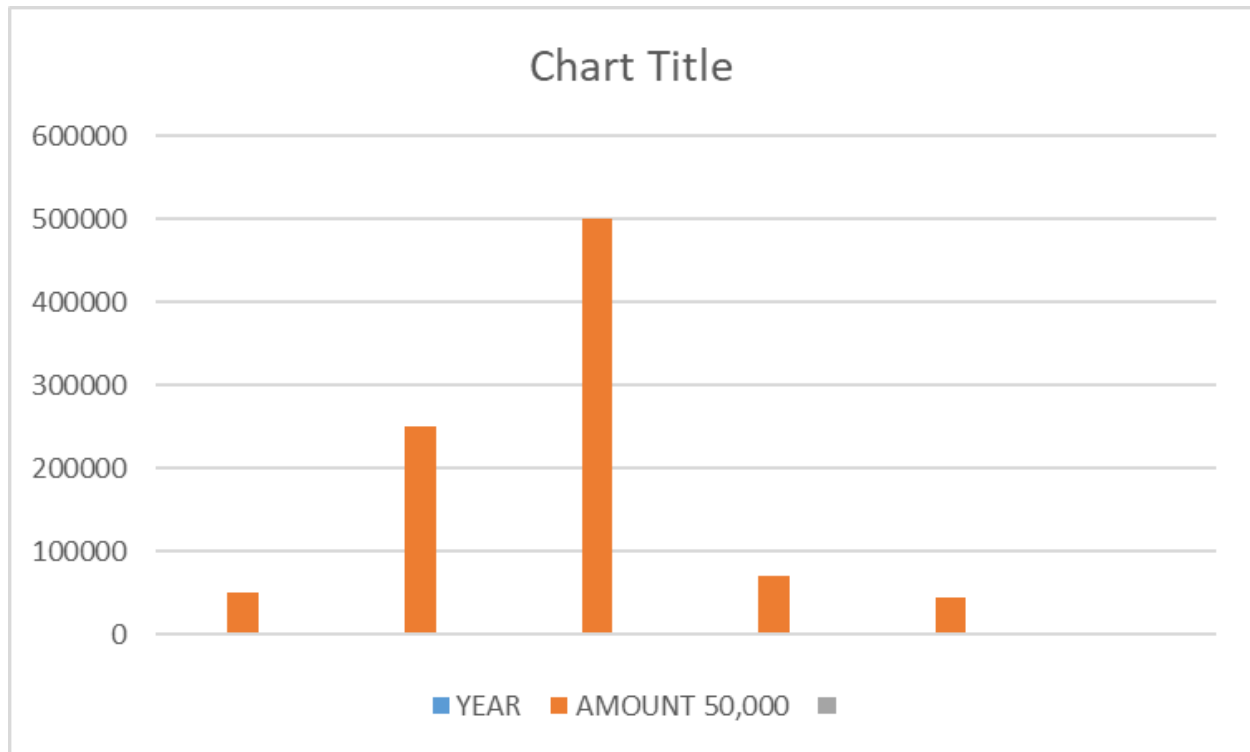
Year 1-Collection of data sorting and transformation-50000

Year 2-Prototype development-250000

Year 3-Building the project-500000

Year 4 &5-Marketing the idea-300,000

Theory of Change

Problem Statement	• The number of road accidents in Kenya has risen at an alarming rate, from 3,707 in 2020 to 4,347 in mid-December 2021, the highest in five years, representing a 17.3 percent increase.

Inputs	Activities	Outputs	Short term outcomes	Mid Term Outcomes	Long Term Outcomes
Technology Funds	Train traffic officers how to use the system Advertisement of the system	Reduce in road accidents by at least 10% Reduce the number of deaths of young talents Reduce the work burden and pressure on traffic officers	Improved road safety Reduced death rates in Kenya	Improved economy Better concentration by drivers on roads	Improved economy

Your team

Joy is a student pursuing Bsc in Statistics and programming in Kenyatta University with 2 years experience in Data Analysis.

Cheryl is a student pursuing Bsc in Computer Science at Masinde Muliro University with 2 years of experience in Data Science.

Rachael is a student pursuing Bsc in Computer Science at Strathmore with experience in Research