



UKA TARSADIA UNIVERSITY

**IDEA HUNT – 2021**

*KINDERED TAIL*

Submitted By

CHINMAY SHRINGI [201803100810037]

HETARTH SANGRAJKA [201803100810032]

**<INFORMATION TECHNOLOGY, C.G.P.I.T.>**

DHRUV DESAI [201803100910143]

**<COMPUTER ENGINEERING, C.G.P.I.T.>**

Guided By

**JENISH LAVJI**

# *KINDERED TAIL*

## **1. What problem is being addressed by your idea?**

We are addressing a wide range of problems being faced by the society due to lack of awareness and sense of responsibility. In the 21<sup>st</sup> century, with the rise in statistical data for working parents, the most common option opted by them are daycare centers. When parents drop their children off at daycare, they expect that their kids will be safe. This is only possible with the proper security measures in place, such as security cameras, access control and visitor protocol. Security breaches can accidentally allow unauthorized people inside the facility, putting children at risk of kidnapping or injury. A few of them are listed below and our product helps in reducing them.

### **Child Abuse and bullying:**

According to the data provided by the government, everyday 109 children are abused on daily basis (REPORTED CASES). Our product helps in identifying the voice patterns and send signal to parent if any hate speech, negative or suspicious comments are made by the speaker.

### **Human Trafficking and Kidnapping:**

The count of people victim to human trafficking yearly is 6k (5264 in 2018) and are the cases that are reported by their kin. Our product uses geolocation to gain access to the user's location and if the location is detected outside of safe area provided by their parents, an alert is sent to the customer showing the current location and thereby seeking officials help.

### **Allergies:**

Children are allergic to certain food and may be exposed to them by carelessness of the daycare officials. Our product is integrated with OVA2640 camera equipped with image recognition to identify if the food kept in front of them is healthy for them or not, as listed by their parents.

### **Temperature and Pollution:**

With the rise in use of air conditioners and air pollution children are subjected to cold temperatures and bad air. Our product will be equipped with IR sensors for temperature measurement and MQ135 to keep the quality of air in check.

## **2. Who will be your potential customers?**

Our potential customers are working parents who have little time to attend to their kids while at work. The idea isn't limited to daycare, our product can be used for safety during carnivals, shopping malls, airports, schools, festivals or any other crowded areas or events.

Our product can be used for old age homes or aged parents at home.

## **3. Why the potential customers will prefer your product/services in comparison to other similar products/services available in market?**

The product designed isn't available in the market and had a good scope to reach a wider range of customers due to busy work schedules to become more efficient.

There are services that provide access to CCTV camera footage. We offer much more than video streaming platform. Our product will be in the market with negligible competition.

**4. How do you implement your proposed idea? Given an overview of the technology/methodology used in the implementation of your idea.**

Our project will be implemented by approaching day care centers appealing to children safety. For fixed proximities like day care centers where children are likely to spend most of their time, installing CCTV cameras for their centers will assure their customers with safety of their children. For existing infrastructure (CCTV, WIFI) we will install our software on their grid to provide them with better user-friendly experience. We can appeal to government to raise Article 39 part IV regarding children safety and appeal to how our product can solve the above listed problems. We can partner up with NGOs to spread awareness regarding children safety and better market product by helping out a social cause.

**WebRTC:**

We are using the latest technology for video streaming providing real-time communication (RTC) via simple application programming interfaces (APIs). It allows audio and video communication to work inside web pages by allowing direct peer-to-peer communication, eliminating the need to install plugins or download native apps.

The WebRTC API includes no provisions for signaling, that is discovering peers to connect to and determine how to establish connections among them. Applications use Interactive Connectivity Establishment for connections and somehow manage sessions, possibly relying on any of Session Initiation Protocol, Extensible Messaging and Presence Protocol, Message Queuing Telemetry Transport, Matrix (protocol), or another protocol.

Signaling may depend on one or more servers. No matter how many customers use our services at any given time there is negligible lag of 200ms.

### **Flutter:**

Flutter apps are built using Dart, a simple object-oriented programming language. It provides with great security features and....

High productivity. Since Flutter is cross-platform, you can use the same code base for your iOS and Android app. This can definitely save you both time and resources.

Great performance. Dart compiles into native code and there is no need to access OEM widgets as Flutter has its own. This means less mediated communication between the app and the platform.

Fast and simple development. One of the most lauded features of Flutter is hot reload which allows you to instantly view the changes made in the code on emulators, simulators and hardware.

Compatibility. Since widgets are part of the app and not the platform, you'll likely experience less or no compatibility issues on different OS versions. This in turn means less time spent on testing.

Open-source. Both Flutter and Dart are open-source and free to use, and provide extensive documentation.

### **Google Cloud:**

The Google Cloud Platform (GCP) is a suite of cloud services hosted on Google's infrastructure. Google Cloud Platform is a suite of public cloud computing services offered by Google. Google Cloud Platform, as the name implies, is a cloud computing platform that provides infrastructure tools and services for users to build applications and services on top of. This will be

used to process the data for the AI and send alerts to parents in case of any red flags.

### **Hashing:**

The stored video recording can only be accessed by key pairs that are available with the parents and are saved using the most secure hashing algorithm SHA-256.

### **Angular:**

Angular is a web application development framework developed by Google and uses algorithms to keep the application secure and fast.

## 5. Discuss the cost effectiveness of your proposed idea.

SR.NO.	NAME	DIMENSIONS	WEIGHT (GMS)	PRICE(INR)
1.	ESP32 CAM WIFI Module Bluetooth	(18.00±0.10) mm × (25.50±0.10) mm × (3.10±0.10) mm	1.74	867
2.	OV2640 Camera (2 MP)	(5.00±0.10) mm × (12.50±0.10) mm × (2.10±0.10) mm	4.33	550
3.	SIM800L COM Module	(20.00±0.10) mm × (20.50±0.10) mm × (1.00±0.10) mm	5.62	795
4.	ESP32 AUDIO Module (MICROPHONE)	(20.00±0.10) mm Dia × (1.00±0.10) mm	8.03	449
5.	Carbon Fiber	163.84 cm <sup>2</sup>	18.25	3913
<b>TOTAL WEIGHT (GMS)</b>				<b>37.97</b>
<b>TOTAL COST (INR)</b>				<b>6,574</b>

The above-mentioned cost is of the hardware to be carried by the user.

The google cloud servers using the services:

- Google Vision (Image recognition)
- Google Voice (Audio for red flags)
- Google location
- Video Storage
- Audio Storage
- User data storage

Cost for all the services combined is: 34,344.15 INR

Cost for waterproof additives and product theme selection is: 4,412.63 INR

Cost for camera installation with installation service (8x 1080p): 23,192.00 INR

**TOTAL COST: 68,522.78 INR**