American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science & Technology (FST)

Protect The Precious

A Software Engineering Project Submitted
By

Semester: Fall_24_25		**Section:F**	**Group Number:3**	
SN	Student Name	Student ID	Contribution (CO3+CO4)	Individual Marks
1	Hasan Mahmud Shanto	22-49453-3	20%	
2	KAZI ROSHID AHAMMOD ROHOLLAH	20-44203-3	20%	
3	MD.Aminul islam Sazal	22-46782-1	20%	
4	S M Abid Hasan	22-46789-1	20%	
5	Md. Hasibul Hossain	22-46605-1	20%	

The project will be Evaluated for the following Course Outcomes

CO3: *Select* appropriate software engineering models, project management roles and their associated skills for the complex software engineering project and evaluate the sustainability of developed software, taking into consideration the societal and environmental aspects	Total Marks	
Appropriate Process Model Selection and Argumentation with Evidence	[5 Marks]	
Evidence of Argumentation regarding process model selection	[5Marks]	
Analysis the impact of societal, health, safety, legal and cultural issues	[5Marks]	
Submission, Defense, Completeness, Spelling, grammar and Organization of the Project report	[5Marks]	
CO4: *Develop* project management plan to manage software engineering projects following the principles of engineering management and economic decision process	Total Marks	
Develop the project plan, its components of the proposed software products	[5Marks]	

Identify all the activities/tasks related to project management and categorize them within the WBS structure. Perform detailed effort estimation correspond with the WBS and schedule the activities with resources	[5Marks]	
Identify all the potential risks in your project and prioritize them to overcome these risk factors.	[5Marks]	

Description of Student's Contribution in the Project work

Student Name: Hasan Mahmud Shanto
Student ID: 22-49453-3
Contribution in Percentage (%): 22% Contribution in the Project:

- Background to the problem
- Functional requirement (D, E, F, O)
- Use Case Diagram
- SWE Process Model Selection
- Merging everything
- UI Design(40%)
- WBS(20%)
- Testing(30%)
- Timeline -1(40%)
- Timeline -2(30%)
- Risk management(25%)

HASAN

_____

Signature of the Student

Student Name: KAZI ROSHID AHAMMOD ROHOLLAH
Student ID: 20-44203-3
Contribution in Percentage (%): 21% Contribution in the Project:

- Solution to the problem
- Functional requirement (G, H, I)
- State chart diagram
- Analysis about selected model
- UI Design(5%)
- WBS(20%)
- Testing(30%)

KAZI ROSHID AHAMMOD ROHOLLAH

_____
Signature of the Student

Student Name: MD.Aminul islam Sazal
Student ID: 22-46782-1
Contribution in Percentage (%): 19% Contribution in the Project:

- Solution to the problem
- Functional requirement (J, K, L)
- Activity Diagram
- Roles and responsibility in selected model
- UI Design(20%)
- WBS(20%)
- Testing(20%)
- Timeline -1(20%)
- Timeline -2(20%)

- Risk management(25%)

MD.Aminul islam Sazal

_____
Signature of the Student

Student Name: S M Abid Hasan
Student ID: 22-46789-1
Contribution in Percentage (%): 19%
Contribution in the Project:

- Solution to the problem
- Functional requirement(L, M, N)
- Activity diagram
- Roles and responsibility in selected model
- UI Design(20%)
- WBS(20%)
- Testing(20%)
- Timeline -1(20%)
- Timeline -2(20%)
- Risk management(25%)

S M Abid Hasan

_____

Signature of the Student

Student Name: Md. Hasibul Hossain
Student ID: 22-46605-1
Contribution in Percentage (%): 19%
Contribution in the Project:

- Solution to the problem
- Functional requirement (A, B, C)
- Class diagram
- Supporting argument for model selection
- UI Design(15%)
- WBS(20%)
- Testing(30%)
- Timeline -1(20%)
- Timeline -2(20%)
- Risk management(25%)

Md. Hasibul Hossain

_____

Signature of the Student

1. PROJECT PROPOSAL

1.1 Background to the Problem

Children's safety on the road has long been a major concern. Ensuring their safety is crucial, whether they're on their way to school, visiting friends, or just playing nearby. With rising traffic, unpredictable incidents, and areas lacking proper safety measures, children face risks that are worrying for parents and communities alike. Many children are exposed to critical situations, including high-traffic areas, poorly monitored zones, and even criminal activity in some neighborhoods. It's crucial to help children navigate these environments safely as they are the bright prospects of the country. While some measures are available, the need for a dedicated child safety system remains.

The core of the problem lies in the lack of proper safety measures and awareness in various spaces, where children are vulnerable to unpredictable dangers. Limited surveillance, inadequate lighting, and high-traffic zones add to the risks children face. This problem is critical because children are naïve and they deserve safe spaces to learn, play, and grow. It's our responsibility to ensure their security, helping them move around safely and giving parents peace of mind.

1.2 Solution to the Problem

To provide safety to children from any kind of situation by using information technology. A mobile application connecting children and their parents. This application contains, live location information, live video and audio access, screen monitoring, automatic danger detection system, automatic notification sending system, automated protection query system which will be the key factors to ensure safety of the children.

We think it is the appropriate solution for solving Child safety on the road. This solution is unique to the market as it ensures the safety of the precious one in a different and innovative way, it has many automated system which makes the solution different from other solutions available in the market, also it offer verities of unique features that that makes it feasible enough to meet the business objectives.

The user needs to turn on the location on their device when they are out of the home. Once activated, the system will keep track of the user. If the system thinks the user is under threat, it enables the automated protection query system that will ask if the user is safe or danger situation and then instantly sends notification to all emergency contact. The system will give notification instantly (within 3 seconds) to the selective contact (5 contact). The system uses

predictive analytics to choose whom the call should go to, and make sure the call goes to the best appropriate person. The system also allows parents to hear and see what their children are doing through their phone's camera and mic without them knowing it, which makes parenting way easier as they can control the surroundings of their children. Another key feature is screen monitoring. The parents can monitor what type of content their children are watching, their browsing history, set screen time for each application also for overall the whole phone, parent can also block or filter various page or application as the internet is a very vulnerable place for our little ones.

The target group of users in our solution is both Parents and children. Though children can't afford this application. So, our priority is to make the software parent based.Childs are so sensitive. So, we can reduce the crime rate and increase their safety. The benefit of this application are many, Children can travel safely and are not victim of crime.

This project contributes to scientific advancements by developing a data-driven safety alert system. By classifying zones (red, yellow, green) based on real-time incident and location data, the project sets a foundation for safer route planning using location data analysis. The project's assess risk and alert contacts, contributes to research on AI applications. Additionally, its privacy-focused design promotes ethical standards in safety technology, and documented methodologies offer valuable resources for replicability in future safety studies. Other features like screen monitoring helps the internet to grow safely as it is a very vulnerable place for children.

Existing studies on road safety for children have focused on risk-based and alert systems, but often lack real-time responsiveness and a child-centered approach. Our project builds on these zone-based classifications with live alerts, specifically designed for children's safety. It not only avoids high-risk areas but also actively notifies emergencies and prompts user safety checks, providing a comprehensive, proactive safety solution that enhances existing approaches. Moreover, this app will be more focused on security, sensitivity and integrity for the users which set us apart from other applications.

There are few applications on the same ideas, such as,

Life360: https://www.life360.com/location-sharing/

Life360 is primarily a family tracking app that allows parents to monitor their children's locations through GPS. However, it doesn't actively categorize areas into risk zones or account for real-time safety features like environmental analysis.

Find my kids: https://play.google.com/store/apps/details?id=org.findmykids.app&hl=en

Find My Kids is a family live GPS tracker designed for child safety and mental health. Parents can connect to a child's GPS watch or install the app for live location sharing. However, it does not actively categorize areas based on criminal activities or safety.

Kids 360: https://play.google.com/store/apps/details?id=app.kids360.parent&hl=en

Kids360 is a parental control app that limits screen time, tracks app usage, and offers educationalgames. It includes an app usage limiter, scheduling, and app statistics, but lacks risk zone categorization and real-time safety features.

FlashGet kids: parental control:
https://play.google.com/store/apps/details?id=com.flashget.parentalcontrol&hl=en

FlashGet Kids is a parental control app that allows parents to monitor their child's location and online activities. Key features include content management, live location tracking with geo- fencing alerts, remote camera access, and one-way audio. However, it does not include risk zoneclassification based on safety data.

FamiSafe:
https://play.google.com/store/apps/details?id=com.wondershare.famisafe&hl=en

FamiSafe is a comprehensive parental control app that includes features for monitoring onlineactivities, location tracking, screen time control, and content filtering. While it offers some monitoring capabilities, it does not provide advanced risk zone alerts or audio surveillance features.

KidSlox: https://play.google.com/store/apps/details?id=com.kidslox.app&hl=en

Kidslox is a parental control app that helps manage screen time and monitor location. It focuses primarily on-screen time management and app blocking but lacks proactive safety features suchas risk zone alerts and real-time audio monitoring.

So, many of these applications lack our technology, where we are providing live classification ofyour area based on recent criminal records and reviews also based on the overall safety measure. Also, many of these applications are manually controlled, which might be missed sometimes by the parents. This is where we innovated to automatic system where the system acts on its own to make decisions and notify the respective parties.