

Muhammad Ali Babar Kiani

{01-134141-067}

Waleed Ahmed

{01-134141-142}

Anti- Carjacking System (ACS)

Bachelor of Science in Computer Science

Supervisor: Ma'am Sumaira Kausar

Department of Computer Science,

Bahria University, Islamabad.

ABSTRACT

Citizens In Pakistan have been deprived of valuables. and motorcycles, worth millions of rupees in the last 10 months despite government and law enforcement agencies claims of taking steps to improve law and order situation in the October data from January to shows that carjacking and thefts of cars are on the rise although police continue making claims of busting criminals and carjackers. Incidents of vehicle snatching and thefts in the last 10 months have increased 100 percent as compared to the same period in 2011 and 2010. About 44% of carjacking incidents occurred in an open area (e.g. on the street or near public transportation) while 24% occurred in parking lots or garages or near commercial places (e.g. stores, gas stations, restaurants).

According to the National Crime Victimization Survey (NCVS) in USA from 2007 to 2015, some 38,000 carjacking victimization occurred annually. Some 93 percent of carjacking's occurred in urban areas. There were multiple carjackers in 56% of incidents. A weapon was used in 74% of carjacking victimizations firearms in 45%, knives in 11%, and other weapons in 18%. About 32% of victims of completed carjacking's and 17% of victims of attempted carjacking's were injured, serious injuries, such as gunshot or knife wounds, broken bones, or internal injuries occurred in about 9% of incidents. Some 68% of carjacking's occurred at nighttime hours (7 p.m. to 7 a.m.). Some 98% of completed carjacking's and 77% of attempted carjacking's were reported to police.

The concept of ACS is for prevention of these carjacking incidents to some instant. And collect as much information as we can to catch the carjackers and thieves for the safety of the persons and their valuables.

Contents

1. Introduction	
1.1. Project Background/Overview	
1.2 Problem Description	14
1.3. Project Objectives	15
1.4. Project Scope	
2. Literature Review	16
2.1. Conclusion	
3. Requirement Specification	19-
3.1. Existing System	19
3.2. Proposed System	19
3.3. Requirement Specification	19
3.4. Use Case	20
3.4.1. Attacker Use Case	21
3.4.2. Car Driver Use Case	22
3.4.3. Report Generation Use Case	23
4. System Design	24
4.1. System Architecture	24
4.2. Design Constraints.	25
4.3. Design Methodology	25
4.4. High level Design	26
4.5. Sequence Diagram	27
4.6. Context Diagram	28
4.7. Package Diagram	29
5. System Implementation.	30
5.1. Tools and Technologies	30
5.1.1. Linux / Ubuntu	30
5.1.2. Anaconda	30
5.1.3. Raspberry pi	30
5.2. Development Environment/Languages Used	31
5.2.1. Python	31
5.2.2. Tensor flow	31
5.3. Main Modules	31

	5.3.1. Module 1	31
	5.3.2. Module 2	32
	5.3.3, Module 3	34
	5.3.4. Module 4	35
6.	5.1. System Testing and Evaluation	36
	6.1.1. Software Testing	36
	6.1.2. Function Testing	36
	6.1.2.1. Unit Testing	36
	6.1.2.2. Integration Testing	36
	6.1.2.3. System Testing	36
	6.1.2.4. White Box Testing	36
	6.1.2.5. Performance Testing	36
	6.1.3. Test Cases	37
	Table 6.1. Detection of Gun	37
7.	'.1. Conclusion	38
	7.1.1. Concluding Comments	38
R	References	39

List of Figures

Figure 1.1	Car-Jacking Car-Jacking	11
Figure 1.2	Demo (Person trying to car-jack)	12
Figure 1.3	Car-jacker pointing the gun at the target	13
Figure 1.4	1: Hand gesture, 2: Gun, 3: Hands up gesture	14
Figure 2.1	Surveillance cameras	16
Figure 2.2	Car-jackers	17
Figure 3.1	ACS Use case	19
Figure 3.2	Attacker Use Case	20
Figure 3.3	Car-driver Use Case	21
Figure 3.4	Report Generation Use Case	22
Figure 4.1	ACS System Architecture	24
Figure 4.2	High Level Design	26
Figure 4.3	Sequence Diagram	27
Figure 4.4	Context Diagram	28
Figure 4.5	Package Diagram	29
Figure 5.1	Camera V2	32
Figure 5.2	Training and test set	32
Figure 5.3	Neural Network	33
Figure 5.4	Surveillance camera 1	34
Figure 5.5	Surveillance camera 2	35

List of Tables

Table 3.1	Use Case-1		21
Table 3.2	Use Case-2		22
Table 3.3	Use Case-3		23
Table 6.1	Detection of Gun		37
Table 6.2	Detection of Gesture		37