Coder Decoder: Airport Security Invasion of Privacy

Pratibha[1], Khushboo Khanna[2]
[1]B.Tech Student, [2]Research Scholar
CGC Technical Campus, Jhanjeri, Mohali Punjab

***Abstract*—**Airport security is one of the great annoyances of the 21st century. Planning a trip is more difficult because it's necessary to think very carefully about what can go in hand baggage and what needs to be checked. The lines at security checkpoints seem to move more slowly every year as new things need to be examined; liquids are limited, shoes have to be taken off, laptops must be removed from hand luggage and X-Rayed separately. In this paper, In order to upgrade airport security and provide unassailable airport security mechanisms, need of hour to introduce stringent "Coder Decoder". Coder Decoder Is a machine which can assign codes to a product without code and collectively gather already existing barcodes[1] such as UPC code, EAN code, code 39,code 128, IIL(interleaved 2 of 5), code 93, Coda bar, gs1 Data bar, MSI Plessey, QR code, Data matrix code, pdf417, Aztec etc and scans for explosive and harmful weapon. Coder Decoder is a mechanism used in order to eliminate all the ambiguities of above mentioned technologies.

Keywords*—Coder Decoder, Airport security, explosive detection, Barcodes.*

I. INTRODUCTION

Airports are particularly busy public places and it is no surprise to see them a prime target for terrorism. Civil aviation has been a particular area of terrorist interest and activity, even before 11 September 2001. The aircraft, crew, passengers and even the airport infrastructure function under the grim shadow of terrorist attacks today. A number of terrorist attacks have occurred all over the world, targeting airports and aircraft that have led one to ponder upon the security at Airports and its challenges.

A. Improving the Security

Today, the threat of terrorism looms even larger and all over the world. It is essential to look into the challenges faced by Airports and improve the security by employing ultra-modern methods of intelligence and security services. It is evident that the earlier security means were not effective or sufficient to tackle the security issues effectively. There is a dire need of adapting to changing circumstances and comprehend the increased levels of threat to airports. It is essential to implement highly sophisticated systems. Security is the degree of resistance to, or protection from, harm. It applies to any vulnerable or valuable asset, such as a person, dwelling, community, item, nation, or organization. The large number of airline bombings shows the real threat to the air passenger travel. From 1985 to 1997, eight commercial aircrafts were lost or damaged due to suspected terrorist bombings and about 1100 people died in these tragedies. The following incidents were caused as a result of explosions within aircrafts: -

a) On June 23, 1985, Air India Boeing 747 crashed into the sea as a result of the explosion in the Cargo hold [2].

b) On November 29, 1987, Korean Air flight 858 was destroyed in flight from an explosive device inside the cabin.

c) On December 21, 1988, Pan Am flight 103 was destroyed by a twelve ounce bomb hidden in a Portable radio over Lockerbie, Scotland.

d) On September 19, 1989 a UTA flight was destroyed over the Sahara from an explosion in the Forward cargo component of a DC-10 aircraft.

e) On November 27, 1989, an Avianca Boeing 727 was destroyed by an explosive device in the Cabin.

f) On December 11, 1994 a Philippine Airlines Boeing 727 was attacked in flight from a bomb .Explosion in the cabin.

g) On July 9, 1997, an explosive device in the passenger cabin detonated on a Transported Aero Mercosur Fokker 100 during the flight.

B. Detection of Bulk Explosives. Detection of Bulk Explosives

Direct detection of explosives concealed on passengers in bulk quantities has been another area of federal interest. Technology development efforts in this area include portal systems based on techniques such as x-ray backscatter imaging, millimeter wave energy analysis, and terahertz imaging. As such systems detect only bulk quantities of explosives; they would not raise "nuisance alarms" on passengers who have recently handled explosives for innocuous reasons. Some versions could simultaneously detect other threats, such as nonmetallic weapons. On the other hand, trace detection techniques are also likely to detect bulk quantities of explosives and may alert screening personnel to security concerns about a passenger who has had contact with explosives but is not actually carrying an explosive device when screened. Current deployments for passenger screening are focused on trace detection, and the remainder of this report does not discuss bulk detection. However, many of the policy issues discussed below would apply similarly to bulk detection equipment. For decades airport security official depends on:-

a) Metal Detectors:- This technology has a glaring flaw: It could not detect non metallic threats, including explosives[3]. It can't even scan under the knee.

b) Full Body Scanners:- Scanners violate privacy. The scanners are an ineffective security method. Full Body Scanners are Expensive. Scanners do not reveal low density items very well.

c) Electronic Gates:- The establishment of electric entryways involves a good amount of money related use. This ranges from buying the gate to services for installation [4]. In case of power failure, malfunctioning system or anyone trapped inside your property can cause inconvenience.

*d) X-Ray Screeners:-*Results show that novice and expert security screeners primarily access perceptual .Knowledge and experience little difficulty during routine situations.

C. Segments under Airport Security

The airport security control segments ensure and look after different segments so as to ensure efficient and effective security as a whole to the airport. These segments comprise of complete airport facilities including cargo, baggage, vehicles, airplanes and airport-air-space access. These include even the people at the airport and these may be the passengers, visitors, staff, air-crew, etc. The airplanes and airport-air-space access along with the environment and cyberspace too need security. What we are looking here is a labyrinth of security challenges that need to be coordinated and maintained. This is one of the biggest challenges faced by the Airport security.

D. Types of Barcodes: Choosing the Right Barcode

When choosing the right types of barcodes for your products, inventory or assets, you face many options. In this paper there are the right types of barcodes to be chosen with all the major 1D and 2D barcode types. There will be a highlight the common uses for each one, as well as constraints that help you narrow down your options: perhaps your products have less than a square inch of printing space, or you might need to print on corrugated cardboard, or you need extra-secure codes. No matter what you need, we have the information you need to get started today. The overview of 8 major one-dimensional and two-dimensional barcode types. We'll cover UPC, EAN, Code 39, Code 128, Code 93, Codabar, QR and Data matrix.

1) One-Dimensional (1D) Barcode Types

One-dimensional, or 1D barcodes, systematically represent data by varying the widths and spacing of parallel lines, and may be referred to as linear or one-dimensional. These include some of the traditional or most well recognized barcode types such as the UPC and EAN code types.

a) UPC CODE

UPC barcodes are used to label and scan consumer goods at points-of-sale around the world—mainly in the United States, but also in the United Kingdom, Australia, New Zealand and other countries. The UPC-A variation encodes 12 numerical digits while UPC-E is a smaller variation, which encodes only 6 numerical digits.

b) EAN CODE

EAN barcodes are also used to label consumer goods worldwide for point-of-sale scanning, primarily in Europe. They look very similar to UPC codes, and the main distinction is their geographical application. While EAN-13 (comprising 13 digits) is the default form factor, you'll find EAN-8 (covering 8 digits) barcodes on products where only limited space is available, like small candies.

c) CODE 39

Code39 barcodes (or Code 3 of 9) are used to label goods across many industries, and are often found in the automotive industry and the US department of Defense. It allows the use of both digits and characters, and its name originates in the fact that it could only encode 39 characters though in its most recent version the character set has been increased to 43.

d) CODE 128

Code 128 barcodes are compact, high-density codes used in logistics and transportation industries for ordering and distribution. They're geared toward non-POS products, like when supply chain applications label units with serial shipping container codes (SSCC). Code 128 barcodes are powerful and can store diversified information because they support any character of the ASCII 128 character set.

e) CODABAR

Codabar barcodes are used by logistics and healthcare professionals, including U.S. blood banks, FedEx, photo labs, and libraries. Its main benefit is that it is easy to print and can be produced by any impact style printer, even a typewriter. Therefore, a user can create many .Codabar codes using consecutive numbers without the use of a computer. It was designed to be readable when printed from dot matrix printers for multi-part forms.

2) Two-Dimensional (2D) Barcode Types

Two-dimensional, or 2D barcodes, systematically represent data using two-dimensional symbols and shapes. They are similar to a linear 1D barcode, but can represent more data per unit area. These include some newer barcode types such as the QR Code and PDF417 code types.

a) QR CODE

QR codes are 2D matrix barcodes with a strong consumer focus, often used in tracking and marketing such as advertisements, magazines, and business cards. Free to use, flexible in size, have a high fault tolerance, and have fast readability, though they can't be read with a laser scanner. QR codes support four different modes of data: numeric, alphanumeric, byte/binary, and Kanji. QR code growth began in Japan and use continues to grow today. They are public domain and free to use.

b) DATAMATRIX CODE

Data matrix codes are 2D barcodes used to label small items, goods, and documents. Their tiny footprint makes them ideal for small products in logistics and operations. In fact, the US Electronic Industries Alliance (EIA) recommends that they

be used to label small electronic components. Similar to QR codes, they have high fault tolerance and fast readability.

E. Policy Issues

Any strategy for deploying and operating passenger explosives detection portals must consider a number of challenges. Organizational challenges include deciding where and how detectors are used, projecting costs, and developing technical and regulatory standards [5]. Operational challenges include maximizing passenger throughput, responding to erroneous and innocuous detections, ensuring passenger acceptance of new procedures, minimizing the potential for intentional disruption of the screening process, and providing for research and development into future generations of detection equipment, including techniques for detecting novel explosives.

F. Equipment Location and Use

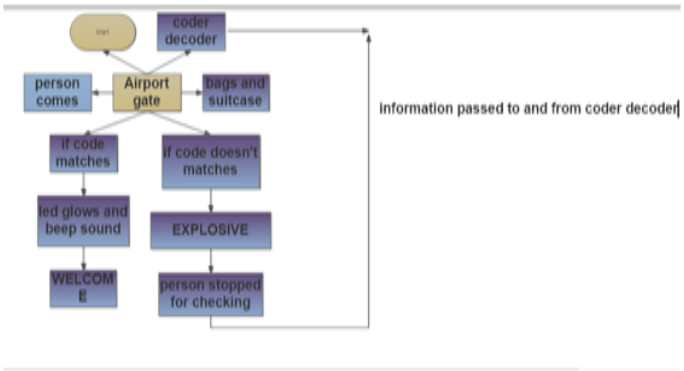
An important component of a deployment strategy is identifying where and how passenger explosives detection equipment will be used. Portals could be deployed widely, so that all locations benefit from them, or they could be used only at selected locations, where they can most effectively address and mitigate risk. In any given location, portals could be used as a primary screening technology for all passengers or as a secondary screening technology for selected passengers only. Widespread deployment and use for primary screening might provide more uniform risk reduction, but would require many more portals and thus increase costs.

G. Passenger Acceptance

Some passengers may have personal concerns about the addition of passenger explosives trace detection to the screening process. Issues of privacy may be raised by the connection between innocuous true positives and passenger medical status or field of employment [6]. Also, equipment that uses a vacuum "wand" or puffs of air for sample collection may offend some passengers' sense of propriety or modesty. Passenger reluctance could then increase screening times. Allowing alternative forms of screening, such as within Segments under Airport Security. The airport security control segments ensure and look after different segments so as to ensure efficient and effective security as a whole to the airport. These segments comprise of complete airport facilities including cargo, baggage, vehicles, airplanes and airport-air-space access. These include even the people at the airport and these may be the passengers, visitors, staff, air-crew, etc. The airplanes and airport-air-space access along with the environment and cyberspace too need security. What we are looking here is security challenges that need to be coordinated and maintained. This is one of the biggest challenges faced by the Airport security.

II. THE PROPOSED WORK

As we all are aware of current scenario of metal detectors being used but metal detectors are not capable of screening below a human knee and definitely it needs physical contact with the substance or human body but why not a device such as coder decoder be invented in order to eliminate this ambiguity and electronic gates used nowadays at Dubai Airports are too expensive and we could cut-short that installation and maintenance cost by introducing revolutionary product named "coder decoder".



III. CONCLUSION

A different research challenge is the detection of explosives through coder decoder. Detectors are generally designed to look for specific explosives, both to limit the number of false or innocuous positives and to allow a determination of which explosive has been detected. Coder Decoder mainly aims at airport security purposes. The security guards needs to install this device and hereby all the code already assigned to the materials are stored in the database on cloud and new materials with no code are randomly given and the codes are side by side stored on cloud and it is scanned and matched when a person comes, if the person doesn't has any explosive equipments then it will not beep else it produces a beep sound and then proper examination procedure can be held. This device is economical, handy, and easy to use.

IV. REFERENCES

[1] https://www.scandit.com/types-barcodes-choosing-right-barcode/.

[2] http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.19.4827&rep=rep1&type=pdf.

[3] http://dwiwrought.weebly.com/blog/-.

[4] http://tthompsonfullbodyscannersinairports.blogspot.in/2011/03/full-body-scanners-in.html.

[5] C. Michael Hall, "Travel Safety, Terrorism and the Media: The Significance of the Issue-Attention Cycle",Routlege,Vol 5,pp 458-466,july 2015.

[6] http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.19.4827&rep=rep1&type=pdf.