

**SPEECH BY THE HON TUN DR MAHATHIR BIN MOHAMAD  
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**“Malaysian RFID Vision Towards Year 2020”**

I feel greatly honoured that I should be invited to speak at this scientific and commercial forum. I feel even more honoured that there should be this many people to listen to what I have to say on a subject, which I am really not quite competent to speak. I am neither an engineer nor a businessman. My little knowledge about microchips and radio frequencies came from my need to find ways to solve security problems during the time when I was the Prime Minister of Malaysia.

2. The problems specifically are those related to counterfeiting and the need to identify people; documents and baggage quickly. As Governments deal with huge amounts and varieties of documents, we need to ensure the genuineness of the documents easily and rapidly. The number of transactions involving the Government has grown so big that we cannot depend on experienced staff to detect the genuineness or otherwise of the documents we are dealing with.

3. Today the criminals are as clever and as skilled in electronics as are the people honestly trying to protect the public from being cheated. As soon as a new method or system is used, the crooks will find ways to copy, and to do so, so cleverly that detection becomes extremely difficult. It takes time to detect counterfeits.

4. Today we are plagued with a new problem -- that of terrorism. We now have a need to check people moving all over the world. We need also to check on the things they carry, whether they are dangerous or harmless. And we need to check everyone and every item of goods carried in the hope that we may not miss one of the millions that we check which may be dangerous. It is tedious and time consuming. It increases the cost of doing everything.

5. There was a time when a passenger could check-in himself, deposit his bag on a moving conveyer belt, tear out the tag for the seat number and board the plane on his own. There was no need for anyone to examine or verify his identity. Then came the first hijacking in America. And very quickly others learnt to hijack planes, the most vulnerable of all the means of transport.

6. It did not cost the hijackers anything at all. But the measures that had to be taken to prevent the hijackers from boarding a plane or loading his bag on it ran into billions of dollars. And still there is no guarantee. As we all know the hijackers who crashed their planes into the New York World Trade Center and the Pentagon were able to hold the crew hostage and to carry out their horrible mission successfully.

7. We have now stepped up the measures to prevent potential hijackers from boarding planes, but the cost, the inconvenience and the fear have been such that the terrorists can consider that they have won. Today in some countries there is still a reluctance to fly. And the advisories to travelers by the rich countries have affected the travel and tour business, costing them billions in loss of incomes. And the cost will continue to rise because we have not yet found a fool-proof way of detecting criminals before they commit their terrible crimes. We have to be eternally vigilant because we cannot really be certain when terror attacks would stop.

8. One of the ways of ensuring that criminals will not blow up planes is to ensure that he flies on the plane he intends to blow up. If his luggage which may contain the explosive device is loaded when he himself has boarded the planes, it is believed unlikely that he would detonate the

device. How to ensure that the luggage flies with the passenger is a problem. Obviously getting the passenger to identify his luggage personally before it is loaded on to a plane as is done in some countries is time-consuming and inconvenient. In Malaysia we think we have found a way to electronically determine the passenger boards the planes in which his luggage has been loaded. But it is not yet a perfect system. More work needs to be done on it. Unfortunately if a passenger is prepared to be blown up, ensuring that he flies with his luggage will not work.

9. Presently baggages are loaded before the passengers embark. Should any passenger fail to turn up, locating and unloading his luggage will delay departure. If the antenna enables the luggage tagged with RFID to be identified from a distance, locating the luggage would be fairly rapid. If not, recording the container in which every piece of luggage is packed and determining where in the hold of the aircraft the container is located would be necessary. Clearly more work needs to be done in order to expedite locating and unloading the luggage of a passenger who fails to show.

10. Identifying through radio frequency promises to speed up identification and prevent counterfeiting of all kinds of things including human beings. There was a time when Identity Cards were considered an intrusion into the privacy of people. But with the spread of terrorism and the widespread crimes involving counterfeiting, things like personal privacy cannot be respected any more. After all passports are a kind of Identity Card and travelers accept being identified through it when they cross borders.

11. While RFID can be used to identify a person, the data needed, including the pictures may need a fairly powerful chip and antenna. Today's Identity Cards are convenient enough at credit card size. In Malaysia a multipurpose card is used so as to reduce the number of cards to be carried by a person. Apart from being an identity card, it is also a credit and debit card, an ATM card, tickets for busses and trains and for relevant medical data.

12. Today's paper currency notes use a variety of systems to prevent counterfeiting. Unfortunately as new systems are introduced, the counterfeiters are able to reproduce them. A combination of systems would make counterfeiting more difficult. RFID can be included in order to make counterfeiting more difficult.

13. The bar-code has been very useful in providing information on a product. Supermarkets find the bar-code adequate. But can RFID improve on the bar-code. Perhaps. This is because bar-codes need to be "seen" by the reader. RFID need not be seen. How close the reader has to be is dependent on the antenna. At the counter the reader can be brought as close as needed to the item concerned. For the purpose of storage of the same item in warehouses the capacity to read from a longer distance will be necessary.

14. For effectiveness, the chip should be a write once and read many times. This will prevent changes in the data or new data being put in. This is of particular interest to the customs, when checking on whether duty has been paid or not.

15. In Malaysia, cigarette manufacturers are allowed to export tax-free a part of their products. Smugglers then smuggle back into the country the untaxed cigarettes. Now all cigarettes for the domestic market must be sealed with security labels issued by the customs office. Exported cigarettes are not sealed with the label. If the exported cigarettes are smuggled back into the country then they will not carry the seal and would be easily detected.

16. Smugglers can lift the seals from the domestic cigarette packets and paste it on the smuggled packets. There are systems where tempering with the seals would destroy the embedded identifying element. The result of the use of the seals has been a big increase in the tax revenue from cigarettes. Government is now able to impose much higher taxes which it was not able to do before because the higher the taxes the bigger is the amount of cigarettes

smuggled back into the country. Since the introduction of the seals tax rates have been increased and Government revenue from cigarettes are expected to increase.

17. However customs officers would have to visually examine practically every packet of cigarettes. This is time-consuming. Perhaps RFID may provide the answer by enabling the cartons of cigarettes to be read without need to open them and to visually check them. Better still if collision can be avoided a whole box of cigarette can be checked without opening the box. This means that if a box contains 10 cartons, and each carton has 20 packets of cigarettes, then the reader should be able to read all the 200 seals on each packet of cigarettes.

18. Today we accept having to pass through a portal or gate which detect any metal that we may be carrying in our pockets. If RFID labels on the packets of cigarettes can be read as the box passes through a gate, then checking for the customs labels can be facilitated.

19. In America prisoners on parole are tagged so that their whereabouts can be traced. The capacity to transmit the information over long distances must require a fairly big tag and antenna. We may not require such a capacity for all prisoners on parole. But it would be convenient if RFID can be used for certain cases merely to identify the person.

20. Already we are using tags in amusement parks and expositions. If they can have information to indicate what rides they are entitled to then gates can be prepared for their admission without the need to purchase tickets.

21. The use of chips to identify documents is now quite widespread. RFID chips can improve the quality and the speed of identification of the documents.

22. Perhaps the most important application would be in currency notes. Many features have been included in the currency notes so as to prevent counterfeits. But anything that the currency printers can use can in theory be copied by counterfeiters. Detecting the counterfeiters require human skills based on vision, the feel of the notes and the use of other human senses. All these take a lot of time especially when large sums are involved.

23. If RFID chips can be included in the notes, it is possible that the genuineness of the notes can be detected even as the notes are being counted by the machines. This would certainly help to prevent counterfeit notes from being passed off as genuine.

24. Of course for the retailer dealing with a small number of notes, a simple reader should be devised. How RFID should be used together with the other security features in order to prevent counterfeits is something worth investigation.

25. Today the secret services of various countries use codes which constantly change in order to prevent code-breaking or copying. As a further step to make RFID more secure, this constantly changing code should be studied and some means to apply it developed. I do not know whether this can be done or not. I do know that such a system has been invented in order to screen messages sent through a computer network.

26. RFID technology is not new. I would have been extensively used if the cost and the size are low enough.

27. Malaysia together with FEC has developed the MM chip which is the size of a dot on an ordinary size printed page. It has a built in antenna and is cheap in comparison with other RFID devices. This is a breakthrough. We hope with the MM chip ubiquitous applications would be possible.