Dual security alarm

Mechanical/Electronics

National Second

Mohammad Aminuddin Ahmed

Sibsagar, Assam

Background

Mohammad Aminuddin Ahmed (30), an illustrious innovator and a man of many interests refers himself as a "Foot path Engineer". He made an audio-visual security system for industrial establishments, which has been well received by commercial corporations such as Oil and Natural Gas Corporation (ONGC).

He is self-employed and lives with his mother and elder brother's family. All members of his family are well educated though he has studied up to Higher Secondary level only. His father, late Mohammad Nizamuddin Ahmed, was a Junior Engineer in Public Works Department (PWD). All his brothers are well settled.

As a child, he dreamt of being an astrophysicist. With growing age, he developed a fascination for machineries. These fascinations made him tinker and develop a lot of innovative devices over time.

At a very young age, he successfully developed a pounding machine to replace conventional machine called "Dheki[1]". He modified it such that it could work with four pestles and also hull paddy more efficiently. This pounding machine won him first prize in a state level science competition.

"Ae machine to bonwar khamoyot moi prathambar trigonometric formula byabohar korisilu aru bostutuwe mok bohut aakorkhon korisil" [2] recollects Aminuddin.

The zeal to master technologies made him spend time and effort at his brother's refrigeration repair shop and very soon, he was repairing electrical gadgets at home. Soon he started troubleshooting and fixing gadgets for everyone in the neighborhood.

Undeterred by the lack of qualifications or training, he persevered and mastered the functional intricacies of many products. Once he spent two and a half months just analyzing and then could finally repair a black and white television set, all on his own.

Being from the minority community, his innovations and intentions were sometimes misunderstood. He once faced such an incident where police took him under custody for two days, as a result of which he suffered with mental tensions due to public denigration. He was let off only after the intervention of NIF, who established his bonafide.

Today things are much calmer and he is now a well-known figure. He is sought equally by people from other communities also who want him to repair a radio or television. He is in demand especially by ONGC officials who need him to troubleshoot larger problems at their installations.

Genesis

Every innovation starts with a pressing need and this was no different.

ONGC and its Security service group, CISF, were looking for a simple security device to communicate effectively among security guards in their oil drilling sites. During full phase drilling process, the

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[1] A wooden device for husking paddy
[2] While making the machine I used the trigonometry formula for the first time and that was very interesting

generator and drilling machines produce a loud and deafening sound. In such condition, normal voice or telephone communication between security guards and control room becomes difficult and even in emergency security guards often fail to communicate quickly with one another.

Aminuddin had occasionally worked for ONGC as a power and electronics repair man in the past. Knowing his expertise, he was asked by the concerned officers of ONGC to come up with an alarm system that would work in such conditions.

Innovation

Initially, he came up with a simple system with a one-way alarming signal system, which connected the sub-station to the control room. The system was installed at one of the units of ONGC in Sibsagar. This model was perceived to have some shortcomings such as, inability to give alarm signal to other sub-stations and not being able to acknowledge the receipt of signal by the control room.

It was necessary to develop an improved version that could enable all sub-stations to receive the alarm signal simultaneously and get alert. Also, to enable the control room to send a return receipt signal to reassure the security personals that their message has been received and help is on the way.

Aminuddin finally designed a new type of security alarm device called 'Dual Security Alarm'. In the new system, alarm signal from a sub-station goes not only to the control room but also to each of the sub-station and to a remote speaker, which can be placed anywhere in the barrack or the hall. Secondly, once the alarm is set off from a sub-

station only the operator in control room can switch it off thus indicating receipt of message. Thirdly, control room can also give alarm signal to all sub-stations and to a remote speaker with the press of a single 'Alarm to All' switch.

The new model was designed for one main station unit and three sub-station units. The number of sub-stations could be increased or decreased as per the requirements.

In the main station unit, there are three indicator bulbs, one for each sub-station units. This indicator light is to locate the source of incoming alarm by the control room. A reset switch is used to acknowledge and stop the incoming alarm.

The sub-station unit consists of one speaker, one LED indicator lamp and one push-button switch by which the security personal can pass the alarm signal to the main station and to other sub-stations.

The improved model was again installed in one of the drilling sites of ONGC. After a performance validation by CISF and ONGS staff, the improved model was given a green signal for its installation in all the drilling sites and in the DIG's office as well.

The ability to control "one to one" and "one to many" emergency communication channels with loops built in for signaling from substation to main station and vice versa is the novelty of the innovation.
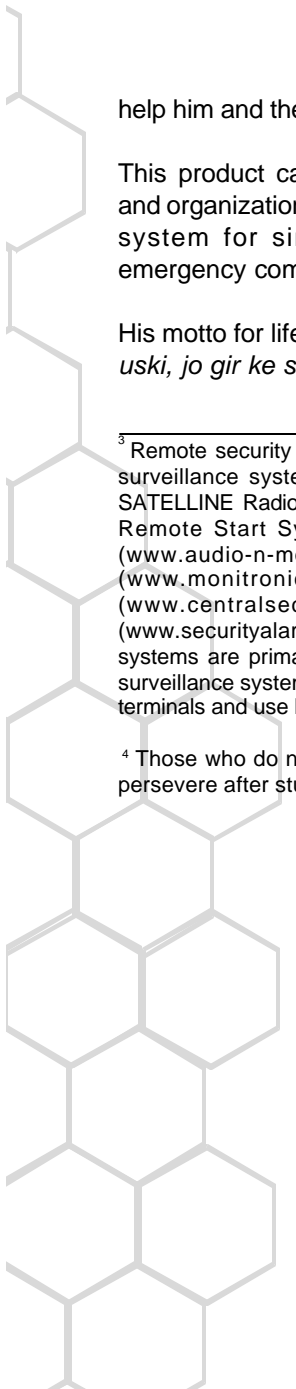
Most of the alternative systems presently use expensive IR, FM, or GSM technology for surveillance systems[3]. This current product uses transformers and simple electronic devices, which makes it simpler and cheaper as compared to its market competitors. There is also no chance

of failure of system due to congestion of networks, which evidently is the biggest problem these days.

One similar innovation, processing apparatus, portable transmitter and remote operation system (US patent No. 20050164728-June, 1987) uses a judgment unit that judges whether a response signal transmitted from the processing apparatus in response to the instruction signal has been received. Personnel property security device (US patent No. 6864789-March, 2005), dual mode panel (US patent No. 6380850-April, 2002) and dual-mode ski alarm apparatus (US patent No. 5260689-Nov. 1993) use electronic circuitry and a wireless transmitter/receivers. But none duplicate what he has done.

Till now Aminuddin has installed twenty-one Dual Alarm Systems in different drilling sites and offices of ONGC and all of them are working well. Complete patent application has been filed in his name for the innovation with the help of GIAN cell of NIF at IIT Guwahati. He has also been provided risk capital support from Micro Venture Innovation Fund (MVIF), at NIF to complete his first commercial order even though the order was not in his name (due to his technical limitations). This had posed a dilemma to colleagues at NIF but then they took the risk to

help him and the results have vindicated their faith.

This product can be used in almost any factory and organizational establishment, which needs this system for similar security, work status or emergency communication.

His motto for life is *"Jisne thokar na khai nahin jeet uski, jo gir ke sambhal jaya hai jeet uski"[4]*.

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[3] Remote security alarm systems are available *viz.* video surveillance systems (www.securityalarmsystems.com), SATELLINE Radio Data Modems (www.satel.com), Alarm/ Remote Start System with two-way communication (www.audio-n-more.com), two-way voice monitoring (www.monitronics.com), Central Security system (www.centralsec.com), Security Alarm Systems (www.securityalarmsystems.co.uk). Most of these alarm systems are primarily based on wireless or CCTV based surveillance system and operated with the use of computer terminals and use high order integration.

[4] Those who do not face hardship do not win; those who persevere after stumbling always win…