CENTER FOR DEVELOPMENT OF
ADVANCED COMPUTING

"Bank Monitoring System"

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CERTIFICATE

This is to certify the project entitled "**BANKING MONITORING SYSTEM**" is a bonafide work carried out by **SUKANT DHAMIJA**, **SUMIT NEGI**, **SUSHANT SINGH,** students of Bachelor of Engineering (B.E.) in UIET, Panjab University Chandigarh has completed their summer training successfully in CDAC, Mohali from 1 June 2018 to 6 July 2018.
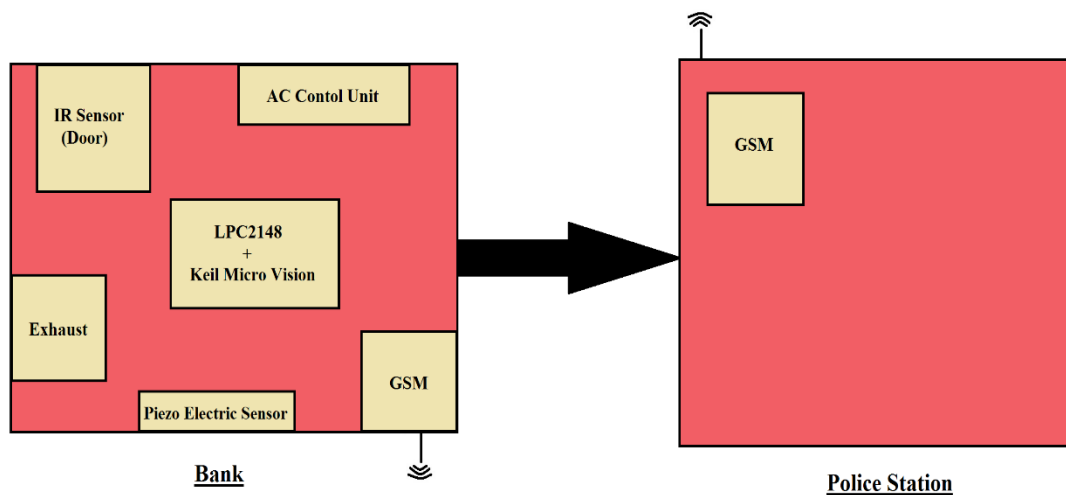
During the tenure of the project, their conduct was good and satisfactory. We wish them all the best for their future endeavours.

ACKNOWLEDGEMENT

We would like to thank for providing us with an opportunity to undergo this training with CDAC (Centre For Development Of Advance Computing). They guided us through our training, provided helpful insights and motivated us to work harder. Their constant guidance and willingness to share their vast knowledge made us understand this project and its manifestation in great depths which helped us in completing the task assigned.

INTRODUCTION

Bank monitoring refers to the controlling of light and ac depending upon the number of persons inside the bank, ensuring the locker security continuously, monitoring and providing pure ventilation by detecting air quality. By controlling the room automatically depend on the number of people inside the bank leads saving electricity. This monitoring and controlling is established with the help of IR sensors and the program is developed in Keil μVision with ARM7 kit. Piezoelectric sensor is used for locker security. It detects vibration existed at the non-working hours of the bank. In case of any theft, sensor detects and gives the information to the system and drives an alarm, at the same time the information is passed to the nearby police station by means of GSM module. This way theft in bank could easily be avoided or prevented.

❖ IR SENSOR MODULE

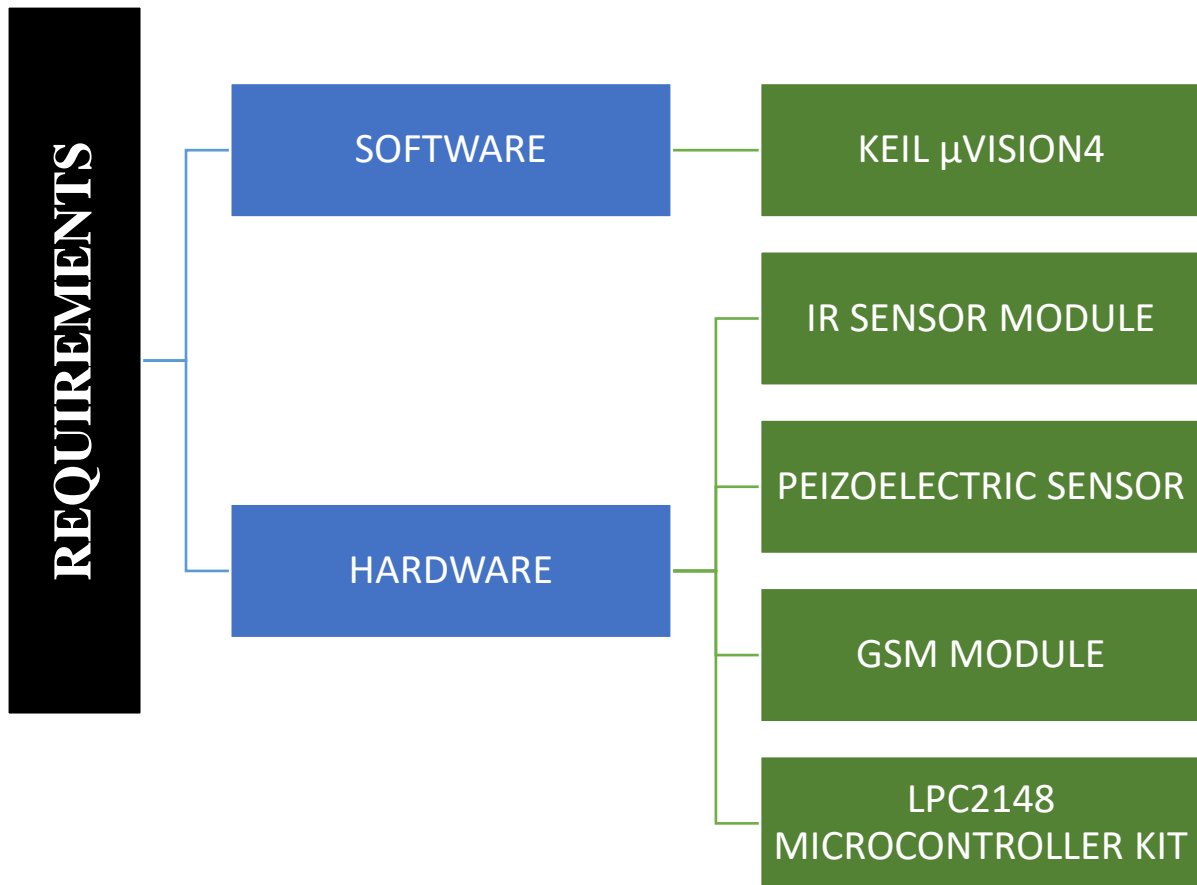The IR sensor is used for human detection. Two IR sensors are used one for detecting the persons entering the bank and the other for detecting those who leave the bank. It consists of a transmitter and receiver. The transmitter is an IR LED and photodiode act as a receiver. When the human presence is detected the comparator circuit to which the IR sensors are connected produces an analog output voltage. The output voltage is acquired by KEIL µVISION through LPC2148 Kit.

❖ PEIZOELECTRIC SENSOR

Piezoelectric sensor which convert the mechanical energy into electrical energy. Here the sensor is used for locker security. The mechanical vibrations produced during theft operation in the locker are detected and converted into an output voltage using a charge amplifier circuit. The output voltage is acquired by KEIL µVISION through LPC2148 Kit.
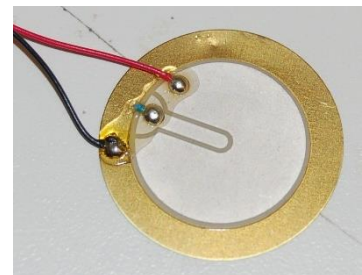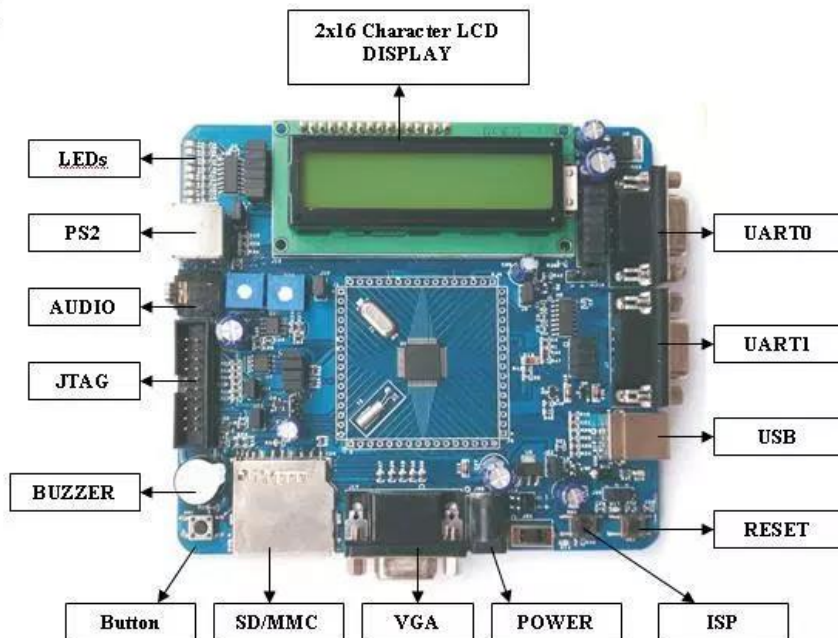
❖ GSM MODULE

Global System for Mobiles is the widely used second generation cellular technology. GSM technology supports variety of services like voice, video, SMS etc. In the above system, if any theft operation exists at Branch Office the SMS and a call will be sent to the authenticated personals and Police Station using this module.

❖ LPC2148 MICROCONTROLLER KIT

The NXP (founded by Philips) LPC2148 is an ARM7TDMI-S based high-performance 32-bit RISC Microcontroller with Thumb extensions 512KB on-chip Flash ROM with In-System Programming (ISP) and In-Application Programming (IAP), 32KB RAM, Vectored Interrupt Controller, Two 10bit ADCs with 14 channels, USB 2.0 Full Speed Device Controller, Two UARTs, one with full modem interface. Two I2C serial interfaces, Two SPI serial interfaces Two 32-bit timers, Watchdog Timer, PWM unit, Real Time Clock with optional battery backup, Brown out detect circuit General purpose I/O pins. CPU clock up to 60 MHz, On-chip crystal oscillator and On-chip PLL.

❖ KEIL µVISION4

The µVision IDE combines project management, run-time environment, build facilities, source code editing, and program debugging in a single powerful environment. µVision is easy-to-use and accelerates your embedded software development. µVision supports multiple screens and allows you to create individual window layouts anywhere on the visual surface.

The µVision Debugger provides a single environment in which you may test, verify, and optimize your application code. The debugger includes traditional features like simple and complex breakpoints, watch windows, and execution control and provides full visibility to device peripherals.
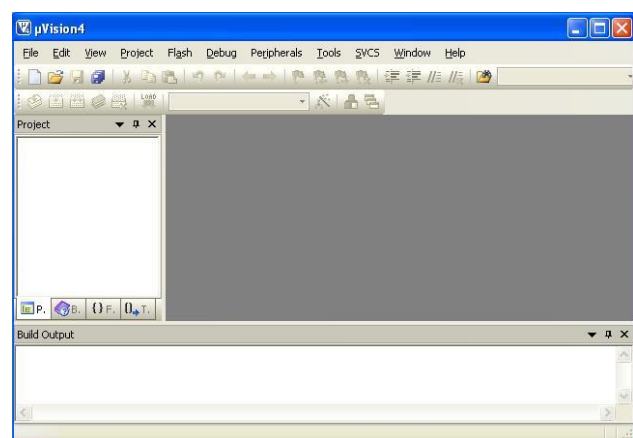
RESULTS

The ARM7TDMI and wireless sensor networks are successfully implemented in bank monitoring system. The data collected by the IR sensors and piezoelectric sensor are successfully transferred. The information from IR sensor is used for light and AC control. During theft operation the piezoelectric sensor information is successfully transferred from Bank to Police station, at the same time a call is made and the message "BANK UNDER THEFT" is sent to the authorised officials of the bank and to the nearby Police Station using GSM.

- ## CONCLUSION

The proposed project reduces the electricity since the light and AC is controlled automatically depending upon the number of persons entering and leaving the bank. As well as the bank locker security is ensured under theft operation by sending message to authenticated personals. Also ensured the quality of the air inside the bank continuously. Hence the power consumption is reduced and security and quality services are improvised in this project.

- ## FUTURE SCOPE

This project can further be developed with advance technologies with some more powerful microcontrollers like ARMCORTEX and some more sensors like CO_2 sensors can be used for proper ventilation as per the congestion in the bank. PIR sensors can be used instead of IR sensors to improve the efficiency in detection of movements. We can also further advance our defence system using shock systems at doors to prevent burglary during non-banking hours.