Design and implementation of virtual brain using IOT

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Abstract **-Human brain, the most valuable creation of God. The man is called intelligent because of the brain. But we loss the knowledge of a brain when the body is destroyed after the death. Virtual brain project will search for insights into how human beings think and remember. The main aim is to upload human brain into a VBOT Sensor. After the death of the body, the virtual brain will act as the man's brain. Such models will shed light on how memories are stored and retrieved. This could reveal many exciting aspects of the brain, such as the form of memories, memory capacity and how memories are lost. This project contains two sensors wireless body area sensor network named Nanobots.This sensor is a wireless network of wearable computing devices. BAN devices may be embedded inside the body.it gather energy from the body temperature and communicate with the VBOT Sensor. Next Sensor is VBOT Sensor it acts like virtual Brain. Through this sensor we can store our secret and our intelligence with the help of PC or Mobile. We can use the secret**

Keywords- **matlab , frame separation, colour detection feature extraction, fire detection.**

I.INTRODUCION

Human brain is the most valuable creation of God. The man is called intelligent because of the brain. The brain translates the information delivered by the impulses, which then enables the person to react. But we loss the knowledge of a brain when the body is destroyed after the death of man. That knowledge might have been used for the development of the human society. What happen if we create a brain and up load the contents of natural brain into it?

Blue Brain

The name of the world's first virtual brain. That means a machine that can function as human brain. Today scientists are in research to create an artificial brain that can think, response, take decision, and keep anything in memory. The main aim is to upload human brain into machine. So that man can think, take decision without any effort. After the death of the body, the virtual brain will act as the man .So, even after the death of a person we will not loose the knowledge, intelligence, personalities, feelings and memories of that man that can be used for the development of the human society. No one has ever understood the complexity of human brain. It is complex than any circuitry in the world. So, question may arise "Is it really possible to create a human brain?" The answer is "Yes". Because what ever man has created today alwayshe has followed the nature. When man does not have a device called computer, it was a big question for all. Technology is growing faster than every thing. IBM is now in research to create a virtual brain, called "Blue brain". If possible, this would be the first virtual brain of the world. With in 30 years, we will be able to scan ourselves into the computers.

II.LITERATUR REVIEW

[1]A synchronization method for wireless acquisition systems has been developed and implemented on a wireless ECoG recording implant and on a wireless EEG recording helmet. The presented algorithm and

hardware implementation allow the precise synchronization of several data streams from several sensor nodes for applications where timing is critical like in event-related potential (ERP) studies. The proposed method has been successfully applied to obtain visual evoked potentials and compared with a reference biosignal amplifier. The control over the exact sampling frequency allows reducing synchronization errors that will otherwise accumulate during a recording. The method is scalable to several sensor nodes communicating with a shared base station.

[2]We present benchtop and in vivo experimental results from an integrated circuit designed for wireless implantable neural recording applications. The chip, which was fabricated in a commercially available 0.6- m 2P3M BiCMOS process, contains 100 amplifiers, a 10-bit analog-to-digital converter (ADC), 100 threshold-based spike detectors, and a 902–928 MHz frequency-shift-keying (FSK) transmitter. Neural signals from a selected amplifier are sampled by the ADC at 15.7 kSps and telemetered over the FSK wireless data link. Power, clock, and command signals are sent to the chip wirelessly over a 2.765-MHz inductive (coil-to-coil) link. The chip is capable of operating with only two off-chip components: a power/command receiving coil and a 100-nF capacitor.

[3] We have designed and implemented a neural interface microsystem, housed in a compact, subcutaneous and hermetically sealed titanium enclosure. The implanted device interfaces the brain with a 510k-approved, 100-element silicon-based microelectrode array via a custom hermetic feedthrough design. Full spectrum neural signals were amplified (0.1 Hz to 7.8 kHz, 200×gain) and multiplexed by a custom application specific integrated circuit, digitized and then packaged for transmission. The neural data (24 Mbps) were transmitted by a wireless data link carried on a frequency-shift-key-modulated signal at 3.2 and 3.8 GHz to a receiver 1 m away by design as a point-to-point communication link for human clinical use. The system was powered by an embedded medical grade rechargeable Li-ion battery for 7 h continuous operation between recharge via an inductive transcutaneous wireless power link at 2 MHz.Main results. Device verification and early validation were performed in both swine and non-human primate freely-moving animal models and showed that the wireless implant was electrically stable, effective in capturing and delivering broadband neural data, and safe for over one year of testing. In addition, we have used the multichannel data from these mobile animal models to demonstrate the ability to decode neural population dynamics associated with motor activity.Significance. We have developed an implanted wireless broadband neural recording device evaluated in non-human primate and swine. The use of this new implantable neural interface technology can provide insight into how to advance human neuroprostheses beyond the present early clinical trials. Further, such tools enable mobile patient use, have the potential for wider diagnosis of neurological conditions and will advance brain research.

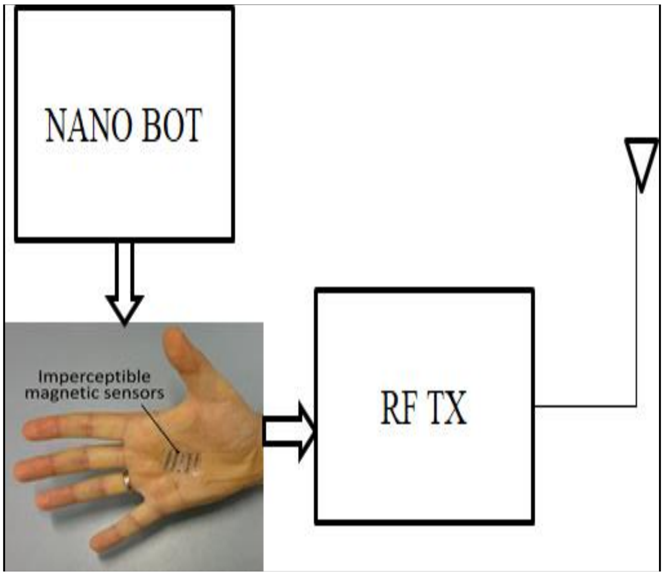
[4] Recent work in field of neuroprosthetics has demonstrated that by observing the simultaneous activity of many neurons in specific regions of the brain, it is possible to produce control signals that allow animals or humans to drive cursors or prosthetic limbs directly through thoughts. As neuroprosthetic devices transition from experimental to clinical use, there is a need for fully-implantable amplification and telemetry electronics in close proximity to the recording sites. To address these needs, we developed a prototype integrated circuit for wireless neural recording from a 100-channel microelectrode array. The design of both the system-level architecture and the individual circuits were driven by severe power constraints for small implantable devices; chronically heating tissue by only a few degrees Celsius leads to cell death. Due to the high data rate produced by 100 neural signals, the system must perform data reduction as well. We use a combination of a low-power ADC and an array of "spike detectors" to reduce the transmitted data rate while preserving critical information. The complete system receives power and commands

[5] Invasive BCI studies have classically relied on actual or imagined movements to train their neural decoding algorithms. In this study, non-human primates were required to perform a 2D BCI task using epidural microECoG recordings. The decoding weights and cortical locations of the electrodes used for control were randomly chosen and fixed for a series of daily recording sessions for five days. Over a period of one week, the subjects learned to accurately control a 2D computer cursor through neural adaptation of microECoG signals over "cortical control columns" having diameters on a the order of a few mm. These results suggest that the spatial resolution of microECoG recordings can be increased via neural plasticity

III. METHODOLOGY

. In proposed system is used to nanobots These nanobot are small enough to travel through out our circulatory system Traveling into the virtual brain ,they will be able to monitor the activity and structure of the central nervous system They will be able to provide an interface with computer Nanobots could also carefully scan structure of our brain, providing a complete readout of the connection today we are developed because of our intelligence. Intelligence is the inborn quality that cannot be created. After the death of a person, virtual brain will act as a person so we will not lose the knowledge, intelligence, personalities, feelings and memories of that man that can be used for the development of the human society. Certain super brains like that of Steve Jobs, or Stephen Hawkings could be interfaced with computer to develop super computers. This information, when entered into a computer, could continue to function as us Thus the data stored in the entire brain will be uploaded into the computer or mobile Nanobots are robots that carry out a very specific function and are ~50–100 nm wide. They can be used very effectively for drug delivery. Normally, drugs work through the entire body before they reach the disease-affected area. Using nanotechnology, the drug can be targeted to a precise location which would make the drug much more effective and reduce the chances of possible side effects. Figure 21.1 shows a device that uses nanobots to monitor the sugar level in the blood [4]. Special sensor nanobots can be inserted into the blood under the skin where microchips, coated with human molecules and designed to emit an electrical impulse signal, monitor the sugar level in the blood.

An RF module (short for radio-frequency module) is a (usually) small electronic device used to transmit and/or receive radio signals between two devices. In an embedded system it is often desirable to communicate with another device wirelessly.



An RF module (short for radio-frequency module) is a (usually) small electronic device used to transmit and/or receive radio signals between two devices. In an embedded system it is often desirable to communicate with another device wirelessly. This wireless communication may be accomplished through optical communication or through radio-frequency (RF) communication. For many applications, the medium of choice is RF since it does not require line of sight. RF communications incorporate a transmitter and a receiver. They are of various types and ranges. Some can transmit up to 500 feet. RF modules are typically fabricated using RF CMOS technology

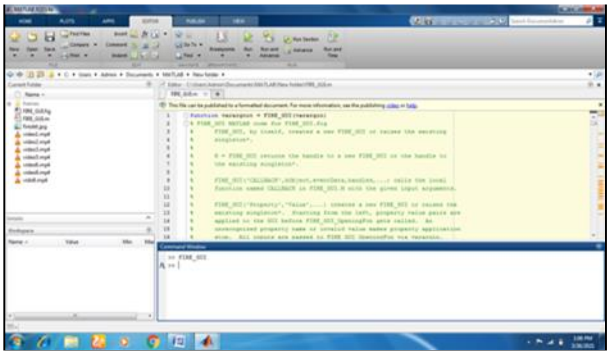


Figure :code of fire detection using GUI

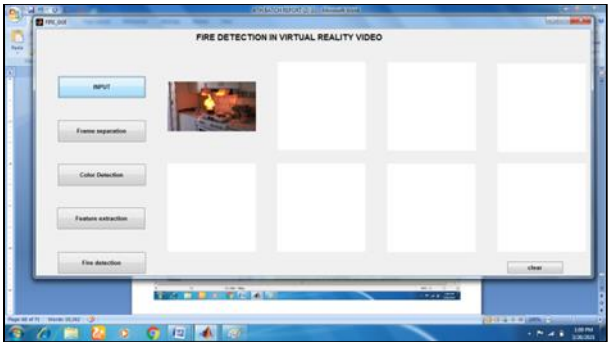


Figure : input of video image can be inserted

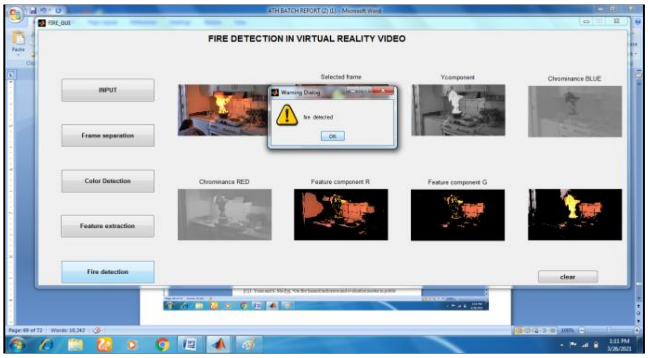


Figure:fire detected black to white

Figure: .frame separation

IV. CONCLUSION

In conclusion, we will be able to transfer ourselves into computers at some point. Most arguments against this outcome are seemingly easy to circumvent. They are either simple minded, or simply require further time for technology to increase. The only serious threats raised are also overcome as we note the combination of biological and digital technologies.

We lose the knowledge of a brain when the body is destroyed after the death. Here blue brain comes in picture. Certain super brains likeBill Gates and Stephen Hawking could be interfaced with computers to make a super computer. Blue brain is an innovative upcoming technology which isan attempt to reverse engineer the human brain and recreate it at the cellular level inside a computer simulation. IT SOUNDS IMPOSSIBLE ISN'T IT? As Christopher Nolan quoted that "perhaps we have just forgotten, that we are still pioneers and we have barely begun". Blue brain project is the step taken to give answers for many unrevealed dark secrets [3].

Blue brain is novel tool for brain disorders. It will be useful to store the intelligent person's brain and use its IQ in research even after his/her death. It can be solution for short term memory and volatile memory at old age and foundation for whole brain simulation. It clears scientific curiosity about consciousness and the human mind. Integration of all neuro scientific research results worldwide. This technology will progress towards building thinking machines (bottom up approach).

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