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*Abstract*—This electronic document is a “live” template and already defines the components of your paper [title, text, heads, etc.] in its style sheet. *\*CRITICAL: Do Not Use Symbols, Special Characters, Footnotes, or Math in Paper Title or Abstract*. (*Abstract*)

Keywords—component, formatting, style, styling, insert (key words)

# Introduction (*Heading 1*)

This template, modified in MS Word 2007 and saved as a “Word 97-2003 Document” for the PC, provides authors with most of the formatting specifications needed for preparing electronic versions of their papers. All standard paper components have been specified for three reasons: (1) ease of use when formatting individual papers, (2) automatic compliance to electronic requirements that facilitate the concurrent or later production of electronic products, and (3) conformity of style throughout a conference proceedings. Margins, column widths, line spacing, and type styles are built-in; examples of the type styles are provided throughout this document and are identified in italic type, within parentheses, following the example. Some components, such as multi-leveled equations, graphics, and tables are not prescribed, although the various table text styles are provided. The formatter will need to create these components, incorporating the applicable criteria that follow.

# Ease of Use

## Selecting a Template (Heading 2)

First, confirm that you have the correct template for your paper size. This template has been tailored for output on the A4 paper size. If you are using US letter-sized paper, please close this file and download the Microsoft Word, Letter file.

## Maintaining the Integrity of the Specifications

The template is used to format your paper and style the text. All margins, column widths, line spaces, and text fonts are prescribed; please do not alter them. You may note peculiarities. For example, the head margin in this template measures proportionately more than is customary. This measurement and others are deliberate, using specifications that anticipate your paper as one part of the entire proceedings, and not as an independent document. Please do not revise any of the current designations.

# Prepare Your Paper Before Styling

Before you begin to format your paper, first write and save the content as a separate text file. Complete all content and organizational editing before formatting. Please note sections A-D below for more information on proofreading, spelling and grammar.

Keep your text and graphic files separate until after the text has been formatted and styled. Do not use hard tabs, and limit use of hard returns to only one return at the end of a paragraph. Do not add any kind of pagination anywhere in the paper. Do not number text heads-the template will do that for you.

## Abbreviations and Acronyms

Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract. Abbreviations such as IEEE, SI, MKS, CGS, sc, dc, and rms do not have to be defined. Do not use abbreviations in the title or heads unless they are unavoidable.

## Units

* Use either SI (MKS) or CGS as primary units. (SI units are encouraged.) English units may be used as secondary units (in parentheses). An exception would be the use of English units as identifiers in trade, such as “3.5-inch disk drive”.
* Avoid combining SI and CGS units, such as current in amperes and magnetic field in oersteds. This often leads to confusion because equations do not balance dimensionally. If you must use mixed units, clearly state the units for each quantity that you use in an equation.
* Do not mix complete spellings and abbreviations of units: “Wb/m2” or “webers per square meter”, not “webers/m2”. Spell out units when they appear in text: “. . . a few henries”, not “. . . a few H”.

Identify applicable funding agency here. If none, delete this text box.

* Use a zero before decimal points: “0.25”, not “.25”. Use “cm3”, not “cc”. (*bullet list*)

## Equations

The equations are an exception to the prescribed specifications of this template. You will need to determine whether or not your equation should be typed using either the Times New Roman or the Symbol font (please no other font). To create multileveled equations, it may be necessary to treat the equation as a graphic and insert it into the text after your paper is styled.

Number equations consecutively. Equation numbers, within parentheses, are to position flush right, as in (1), using a right tab stop. To make your equations more compact, you may use the solidus ( / ), the exp function, or appropriate exponents. Italicize Roman symbols for quantities and variables, but not Greek symbols. Use a long dash rather than a hyphen for a minus sign. Punctuate equations with commas or periods when they are part of a sentence, as in:

*a**b* 

Note that the equation is centered using a center tab stop. Be sure that the symbols in your equation have been defined before or immediately following the equation. Use “(1)”, not “Eq. (1)” or “equation (1)”, except at the beginning of a sentence: “Equation (1) is . . .”

## Some Common Mistakes

* The word “data” is plural, not singular.
* The subscript for the permeability of vacuum **0, and other common scientific constants, is zero with subscript formatting, not a lowercase letter “o”.
* In American English, commas, semicolons, periods, question and exclamation marks are located within quotation marks only when a complete thought or name is cited, such as a title or full quotation. When quotation marks are used, instead of a bold or italic typeface, to highlight a word or phrase, punctuation should appear outside of the quotation marks. A parenthetical phrase or statement at the end of a sentence is punctuated outside of the closing parenthesis (like this). (A parenthetical sentence is punctuated within the parentheses.)
* A graph within a graph is an “inset”, not an “insert”. The word alternatively is preferred to the word “alternately” (unless you really mean something that alternates).
* Do not use the word “essentially” to mean “approximately” or “effectively”.
* In your paper title, if the words “that uses” can accurately replace the word “using”, capitalize the “u”; if not, keep using lower-cased.
* Be aware of the different meanings of the homophones “affect” and “effect”, “complement” and “compliment”, “discreet” and “discrete”, “principal” and “principle”.
* Do not confuse “imply” and “infer”.
* The prefix “non” is not a word; it should be joined to the word it modifies, usually without a hyphen.
* There is no period after the “et” in the Latin abbreviation “et al.”.
* The abbreviation “i.e.” means “that is”, and the abbreviation “e.g.” means “for example”.

An excellent style manual for science writers is [7].

# Using the Template

After the text edit has been completed, the paper is ready for the template. Duplicate the template file by using the Save As command, and use the naming convention prescribed by your conference for the name of your paper. In this newly created file, highlight all of the contents and import your prepared text file. You are now ready to style your paper; use the scroll down window on the left of the MS Word Formatting toolbar.

## Authors and Affiliations

PROPOSED SYSTEM**.**

The proposed system, shown in Figure 1, is designed to govern Fire and human detection at outdoor Areas, sensing through sensors, surveillance cameras, which are embedded on outsides. The system works in a distributed manner, It processes sensors data at the node level and send to the firebase real time database, videos data at the local server, calculates fire and human detections. In addition to this, it also tackles and send notifications to ambulance, fire brigade. it also helps the users to know the congestion status of a area through prediction. The system is divided into three layers. A) Data Acquisition and Collection layer. B) Data Processing and Decision-making layer C) Application and Actuation layer.

A. Data Acquisition and Collection Layer

Several ways of Fire detection have been used by the researchers in the state of the art which consists ultrasonic sensors, Pir sensor and surveillance cameras. All these sources have merits as well as demerits; the suitable sources in the context of the proposed system are surveillance cameras, ultrasonic sensors and flame sensors. A surveillance camera is the most widely used source to detect the outside situation in this field due to efficiency and ease of maintenance. object detection algorithm (SSD) is applied to the video stream at the local server due to its performance and capability of detect frames accurately [18]. After human and fire detection, a local server sends the Detection results through image processing and deep learning to the firebase.

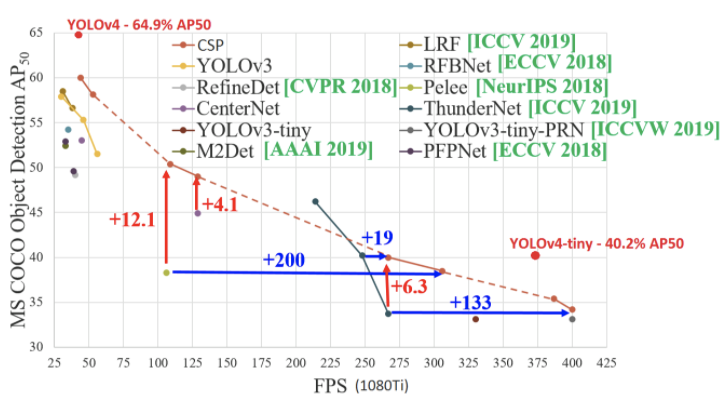
Apart from the cameras, this system is also using Fire sensors and Pir sensors to enhance the accuracy. Sensors are integral part used to detect fire in many Fire management system applications [13]. Pir sensor that measures infrared light radiating from objects. PIR sensors mostly used in PIR-based motion detectors. Also, it used in security alarms and automatic lighting applications. Since PIR sensors have ranges of **up to 10 meters (30 feet)**, a single detector placed near the entrance is typically all that is necessary for rooms with only a single entrance.. A sensor which is most sensitive to a normal light is known as a flame sensor. That’s why this [sensor module](https://www.elprocus.com/accelerometer-sensor-working-and-applications/) is used in flame alarms. This sensor detects flame otherwise wavelength within the range of 760 nm – 1100 nm from the light source. This sensor can be easily damaged to high temperature. So this sensor can be placed at a certain distance from the flame. The flame detection can be done from a 9 feet distance and the detection angle will be 60.

|  |  |  |
| --- | --- | --- |
| Pir Sensor output | Fire Sensor output | Alert Generate |
| 0 | 1 | 1 |
| 0 | 1 | 1 |
| 0 | 0 | 0 |
| 1 | 0 | 0 |

The diagram shows the outcomes when the system generates alert message. When fire sensor and pir sensor both High the nodemcu send alert message to the fire base and then it get by the mobile applications. When only fire sensor is high then its genetates the alert message but not in cause only pir sensor is high. The system is fully automatic only power is given all data will flows automatically.

B. Data Processing and Decision-Making Layer

1. The system has All data from sensors and camera video feed. The data goes to the desktop Application where we applied deep learning models on video feed. The abject detection we used is yolo v4 tiny. YOLO v4 Tiny, a version of YOLOv4 developed for edge and lower-power devices, is a real-time object detection algorithm capable of detecting and providing bounding boxes for many different objects in a single image. YOLOv4-tiny is the compressed version of YOLOv4 designed to train on machines that have less computing power. Its model weights are around 16 megabytes large, allowing it to train on 350 images in 1 hour when using a Tesla P100 GPU. YOLOv4-tiny has an inference speed of 3 ms on the Tesla P100, making it one of the fastest object detection models to exist. YOLOv4-Tiny Architecture
2. YOLOv4-Tiny utilizes a couple of different changes from the original YOLOv4 network to help it achieve these fast speeds. First and foremost, The number of convolutional layers in the CSP backbone are compressed with a total of 29 pretrained convolutional layers. Additionally, the number of YOLO layers has been reduced to two instead of three and there are fewer anchor boxes for prediction.YOLOv4-Tiny has comparatively competitive results with YOLOv4 given the size reduction. It achieves 40 mAP @.5 on the MS COCO dataset



##### References

The template will number citations consecutively within brackets [1]. The sentence punctuation follows the bracket [2]. Refer simply to the reference number, as in [3]—do not use “Ref. [3]” or “reference [3]” except at the beginning of a sentence: “Reference [3] was the first ...”

Number footnotes separately in superscripts. Place the actual footnote at the bottom of the column in which it was cited. Do not put footnotes in the abstract or reference list. Use letters for table footnotes.

Unless there are six authors or more give all authors’ names; do not use “et al.”. Papers that have not been published, even if they have been submitted for publication, should be cited as “unpublished” [4]. Papers that have been accepted for publication should be cited as “in press” [5]. Capitalize only the first word in a paper title, except for proper nouns and element symbols.

For papers published in translation journals, please give the English citation first, followed by the original foreign-language citation [6].

1. G. Eason, B. Noble, and I. N. Sneddon, “On certain integrals of Lipschitz-Hankel type involving products of Bessel functions,” Phil. Trans. Roy. Soc. London, vol. A247, pp. 529–551, April 1955. *(references)*
2. J. Clerk Maxwell, A Treatise on Electricity and Magnetism, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68–73.
3. I. S. Jacobs and C. P. Bean, “Fine particles, thin films and exchange anisotropy,” in Magnetism, vol. III, G. T. Rado and H. Suhl, Eds. New York: Academic, 1963, pp. 271–350.
4. K. Elissa, “Title of paper if known,” unpublished.
5. R. Nicole, “Title of paper with only first word capitalized,” J. Name Stand. Abbrev., in press.
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7. M. Young, The Technical Writer’s Handbook. Mill Valley, CA: University Science, 1989.

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To have non-visible rules on your frame, use the MSWord “Format” pull-down menu, select Text Box > Colors and Lines to choose No Fill and No Line.