

Anti Bicycle Theft

Kevin Freeman, Martin Schwarzmaier
Practical Course on Wireless Sensor Networks
Advised by: Dr. Omar Alfandi; Arne Bochem, M.Sc.

Introduction

Bicycle theft is a major problem in many cities, especially university towns. Our aim was to create a system that enables a bike owner to track a stolen bike. While other systems already on the market are trying to accomplish this by using GSM modules we tried to use a minimalistic approach: A tracking GPS module that can be turned on when a bike has been stolen, tracks positions and retransmits them to the user via a short distance wireless interface.
Start with the following document:

```
\documentclass{a0poster}
\usepackage{fancytikzposter} % here most of the things are defined

% change parameters only after this line

\usepackage[margin=\margin cm, paperwidth=84.1cm, paperheight=118.9cm]{ geometry}

\title{Title}
\author{Author\Institution\\\texttt{email}}
\begin{document}
\AddToShipoutPicture{\BackgroundPicture}

\noindent
\begin{tikzpicture}
\initializesizeandshifts

\titleblock{50}{1}
\blocknode{Block Title}{Block Content}
\startsecondcolumn
\blocknode{Block Title 2}{Block Content 2}
\end{tikzpicture}
\end{document}
```

Macro for creating a block node:

```
\blocknode{Block Title}{Block Content}
```

Macro `\blocknode` has three parameters. The first one is optional and it is the position of the block. The first block will be automatically placed to $(\$(\text{firstrow})-(\text{xshift})-(\text{yshift})\$)$, which is the left corner below the title block. In most of the templates, (firstrow) is set to (title.south) , where *title* is the alias for the title block. Each subsequent block is automatically placed to $[(\$(\text{box.south})-(\text{yshift})\$)]$, i.e., below the previous block aliased *box*. You can also use an explicit parameter, e.g., $(-10, 30)$ (note that $(0,0)$ is the center of the poster). The second parameter is the title of the block. Finally, the last parameter is the actual content.

Block Nodes in the Second Column

To start the second column or the third column use commands `\startsecondcolumn`, and `\startthirdcolumn`.

If the number of columns is 2, then the last command will not have effect.

You can also start a new column with an arbitrary x-coordinate by specifying explicitly the coordinate of the new block node as follows:

```
\blocknode[(\$(\text{firstrow})-(\text{yshift})+(\text{x},0\$))]{Block Title}{Block Content}
```

Useful Macro Within Block Nodes

There are three types of colored boxes/blocks that you can use inside block nodes to highlight information.

Theorem

Statement

```
\innerblock{Theorem}{Statement}
```

Text

```
\innerblockplain[colorone!80!]{Text}
```

Text

```
\coloredbox{colorthree!50!}{Text}
```

The default figure environment does not work within a `tikzpicture`. I created a new figure environment that can be used instead, based on the code sent by Stephan Thober.

```
\begin{tikzfigure}[Caption]
...
\end{tikzfigure}
```

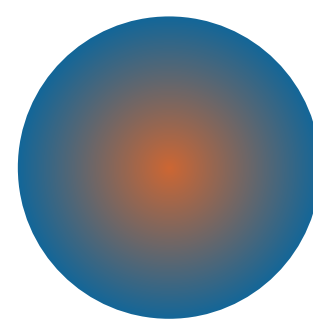


Fig. 1: A shaded circle

Making Title

To make title, use the standard commands `\title` and `\author` in the preamble, and then the following macro:

```
\titleblock{50}{1.5}
```

Macro `\titleblock` has three parameters. The first one is optional and it specifies the shift of the title block w.r.t. its default position, which is set to $(\$0.5*(0,\text{paperheight})-(0,\text{margin})\$)$. The second parameter is the width of the title block, and the third parameter is the scaling ratio (to make the title bigger or smaller).

The syntax for specifying authors is similar to the one in `aaai.sty`. Author information can be set in various styles: For several authors from the same institution:

```
\author{Author 1 \and ... \and Author n \\
Address line \\ ... \\ Address line}
```

If the names do not fit well on one line use

```
\author{Author 1 \\ {\bf Author 2} \\ ... \\ {\bf Author n} \\
Address line \\ ... \\ Address line}
```

For authors from different institutions:

```
\author{Author 1 \\ Address line \\ ... \\ Address line
\And ... \And
Author n \\ Address line \\ ... \\ Address line}
```

To start a separate “row” of authors use `\AND`, as in

```
\author{Author 1 \\ Address line \\ ... \\ Address line \AND
Author 2 \\ Address line \\ ... \\ Address line \AND
Author 3 \\ Address line \\ ... \\ Address line}
```

(though, I must say `\and ... \and` did not work for me with more than 2 authors, so just use commas where you need if it does not work for you either).

Variable Width Block Nodes

You can also create blocks of arbitrary width

```
\blocknodew[coordinate]{Block width}{Block Title}{Block Content}
```

In this case it is better to specify coordinate manually if you want to have blocks aligned vertically.

Note that (xshift) and (yshift) are coordinates created in macro `\initializesizeandshifts`, and they allow to have relative positioning of block nodes in an automatic fashion. If you want to define your own shifts, set new values for (xshift) and (yshift) using commands `\setxshift` and `\setyshift`.

Also, it might be useful to know the y-coordinate of the south border of the previous block. You can retrieve it by using the command

```
\getcurrentrow{box} or \getcurrentrow{note}
```

This coordinate will be stored in (currentrow) , which can be used to specify the location of the next block node.

There are also callout blocks that allow for a more interesting layout of the poster.

```
\calloutblock[rotate angle]{from coordinate}{coordinate}{Block
Width}{Block Content}
```

The alias for such blocks is *note*.

Plain blocks These blocks are similar to callout blocks. They allow for specifying the title of the block.

```
\plainblock[rotate angle]{coordinate}{Block Width}{Block Title}{Block
Content}
```

Personalizing the Poster

It is possible to adjust the layout of the poster. To impose your own setting, you can use these macros:

- Macros for changing sizes

```
\setmargin{4}, \setheaddrawingheight{14}, \setinstituteshift{10},
\setblockspacing{2}, \setblocktitleheight{3}
```

- Other structural macros

```
\setcolumnnumber{3}, \usetemplate{6},
\usecolortemplate{4}, \usebackgroundtemplate{5}, \usetitletemplate{2},
\useblocknodetemplate{5}, \useinnerblocktemplate{3}, \useplainblocktemplate{4}
```

- Macro for adding logos to the title block

```
\addlogo[south west]{(0,0)}{6cm}{filename}
```

- Macros for the basic colors

```
\setfirstcolor{green!70!}, \setsecondcolor{gray!80!}, \setthirdcolor{red!80!black}
```

- Macros for specific colors:

```
\setbackgrounddarkcolor{colorone!70!black}, \setbackgroundlightcolor{colorone!70!},
\settitledrawcolor{colortwo}, \setblocktextcolor{textcolor}, \setblockfillcolor{white},
\setblocktitletextcolor{colorone}, \setblocktitlefillcolor{colortwo},
\setplainblocktextcolor{textcolor}, \setplainblockfillcolor{colorthree!40},
\setplainblocktitletextcolor{textcolor}, \setplainblocktitlefillcolor{colorthree!60},
\setinnerblocktextcolor{textcolor}, \setinnerblockfillcolor{white},
\setinnerblocktitletextcolor{white}, \setinnerblocktitlefillcolor{colorthree},
```