SELF BALANCING BICYCLE

# Team Leader: *SHREYANSH JAIN(183065)*

Students requirement**:** *(5)*

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Needs Assessment

*During NIMBUS 2k19, when we were presenting our project “Self balancing bot” to the faculties, one of them pointed out that you can implement this on real life problem like to balance a bicycle. So, we explored about the project idea and found it interesting and helpful in many aspects like, in college campus.*

Deliverables

*First stage of the project aims on achieving balanced standing of bicycle on its own, using a mechanical flywheel. After that we will work on balanced movement and after implementing Computer Vision and Image processing, self-balancing and driving stage of bicycle is expected.*

Project Description

* *Description in points, mentioning an overview of the approach to be taken.*

Skills Required

* *Mechanical designing*
* *Programming*
* *Electronics (circuit designing)*

# Budget

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No.** | **Component** | **Specifications** | **Quantity** | **Price (₹)** |
| 1. | Second hand bicycle |  | 1 | 2500 |
| 2. | Flywheel |  | 1 |  |
| 3 | Microcontroller | AT mega 16 | 1 | 130 |
| 4 | Dual axis gyroscope | IDG500 | 1 | 325 |
| 5 | High torque DC motor | 24V | 1 | 3000 |
| 6 | Motor driver | L298N | 1 | 175 |
| 7 | Triple axis accelerometer | ADXL335 | 1 | 300 |
| 8 | AT mega 16 development board |  | 1 | 250 |
|  | **Total** | | | **₹ 6680** |

# Previous Work:

* The bicycle can balance itself while moving.

Link:: <https://www.youtube.com/watch?v=4UHLRmYNDMQ>

**Application:**

1. Such a system could be used both as a teaching tool, and as a physically therapeutic device.
2. Self- balancing bicycle would be a better choice for the short distance travelling purpose, avoiding environmental issues.

**Future Development:**

* Make it driverless along with self-balancing, using computer Vision and image processing.

**Resources:**

1. Resource1 [http://scholar.google.co.in/scholar\_url?url=https://pdfs.semanticscholar.org/cc24/b3128edd9e426ff3cf63fb99302ff0977db8.pdf&hl=en&sa=X&scisig=AAGBfm1818eyi5kxht\_VDVruEdOuaBG44Q&nossl=1&oi=scholarr]